CURRICULUM VITAE

Mukul Das, Ph.D

Personal data

Date & place of birth	:	July 9, 1956, Lucknow, India
Home Address	:	215/19 Ka, Kamal Sarovar Subhash Marg, Lucknow-226003
Home telephone Number	:	(0522) 2265007, 2745313
Office Address	:	Chief Scientist & Area Coordinator Food, Drug & Chemical Toxicolgy Group CSIR - Indian Institute of Toxicology Research Post Box No: 80, Mahatma Gandhi Marg Lucknow-226001, India.
Office phone	:	0522-2963826
Office Fax	:	(91) 0522-2628227
Office E-mail	:	mditrc@rediffmail.com mditrc@hotmail.com
Marital status	:	Married

Academic Qualification

1976	:	B.Sc Chemistry, Botany and Zoology, First Division Lucknow University, Lucknow.
1978	:	M.Sc Biochemistry, First Division Lucknow University, Lucknow.
1983	:	Ph.D. Kanpur University/ITRC, India Thesis: Chemical studies on brain xenobiotic metabolism

Advance training/Deputation abroad:

1. Visited on invitation to Kuopio University, Finland, to attend 4th International Conference on Cytochrome P-450 from June 1-3, 1982.

2. Awarded research associate fellowship from Department of Chemistry, Wayne State University, Detorit, USA from Sept.1982 to July 1983

3. Awarded research associate fellowship from Department of Dermatology, Case Western Reserve University, Cleveland, USA from July 1983 - Oct. 1986.

4. Visited on invitation to Cologne and Gottengen, West Germany to attend the 4th Annual Meeting of Skin Pharmacology Society and Workshop on Photodermatology from May 31 - June 21, 1987.

5. Visited on invitation to Prague, Czechoslovakia to attend XIV International Congress of Biochemistry from July 5-15, 1988.

6. Visited on invitation to WHO, Geneva, Switzerland to attend 63rd Meeting of Joint Expert Committee on Food Additives from June 7-18, 2004.

7. Visited on invitation to Dubrovnik, Croatia to attend EUROTOX 2006 and 6th CTDC Conference from September 20-26, 2006.

8. Visited on invitation to Brussels, Belgium as an expert to review Indo-EU projects on Functional Foods, March 15-20, 2009.

Positions held:

Feb 1980 - Jan 1982	Junior Research Fellow, Industrial Toxicology Research Centre, Lucknow, India.
Feb 1982 - Aug 1982	Senior Research Fellow, Industrial Toxicology Research Centre, Lucknow India.
Sept 1982 - July 1983	Research Associate, Department of Chemistry, Wayne State University, Detroit, Michigan, USA.
July 1983 - June 1985	Research Associate, Department of Dermatology, Case Western Reserve University and Veterans Administration. Medical Centre, Cleveland, Ohio,USA.
July 1985 - Oct 1986	Senior Research Associate, Department of Dermatology, Case Western Reserve University and Veterans Administration Medical Centre, Cleveland, Ohio, USA.
Nov.1986 - May 1987	Adhoc Sc C, Industrial Toxicology Research Centre, Lucknow, India.
May 1987 - May 1991	Scientist C, Industrial Toxicology Reaserch Centre, Lucknow, India
May 1991 - May 1996	Asst. Director (Sc EI), Industrial Toxicology Research Centre, Lucknow, India.
May 1996 - May 2001	Sr. Asst. Director (Sc EII), Industrial Toxicology Research Centre, Lucknow, India.
May 2001 – May 2007	Deputy Director (Sc F), Industrial Toxicology Research Centre, Lucknow, India
May 2007- till date	Chief Scientist, Indian Institute of Toxicology Research, Lucknow, India

Honors\Awards:

1980 - 82	Council of Scientific & Industrial Research (India) merit fellowship award.
1985	Recipient of Burroughs Wellcome Fund Fellowship Award in honor of Dr Marion Sulzberger, USA.
1985	Plenary Presentation at joint meeting of Society of Investigative Dermatology, USA and Japanese Society for Investigative Dermatology “Chronic oral feeding of ellagic acid inhibits 3-methylcholanthrene induced skin tumorigenesis”.
1986	Recipient of Schering-Plough Foundation Research Fellowship Award from Dermatology Foundation, USA.
1986	Plenary Presentation at annual meeting of Society of Investigative Dermatology, USA “Comparative tumorigenicity of crude coal tar with other polycyclic hydrocarbons in skin of SENCAR mice”.
1988	Recipient of the International Union of Biochemistry Fellowship Award to attend XIV International Congress of Biochemistry, Prauge, Czechoslovakia, July 10-15, 1988.

1990	Recipient of ITRC Young Scientist Award on Silver Jubilee Foundation Day.
1991	Recipient of ITRC Technology Award
2002	Awarded Fellow of Society of Toxicology, India at the XXI Annual conference of Society of Toxicology, at Kolkata December 3-5, 2002.
2004	WHO Temporary Adviser for 63rd Meeting of Joint FAO/WHO Expert Committee on Food Additives at Geneva, Switzerland, June 7-18, 2004
2007	Awarded Fellow of National Academy of Agricultural Sciences (FNAASc), New Delhi
2007-till date	Chairman, Food colours and Flavours Sub-committee of Bureau of Indian Standards. FADC (8:1).
2007-2014	President, Indian Nanoscience Society (INS)
2008	Paper cited on Cover Page of **Current Science** 94 (2008) 570-572
2009	European Union Pannel of Experts for review of projects on Functional Foods, Brussels, Belgium
2009	Paper cited on Cover Page of **Toxicol Appl Pharm** 234 (2009) 192-201.
2009	Co-editor of a Special Issue of an international journal "Nanotoxicology" Vol 3, No 1, 2009
2010	Awarded Fellow of National Academy of Sciences (FNASc), India
2011	Paper cited on Cover Page of **Clinical & Exp Allergy** 41 (2011) 1157-1168.
2011	Paper cited on Cover Page of **GM Crops** 2 (2011) 92-98.
2013	13th Alumni Oration of Alumni Association of Department of Biochemistry (AADB), University of Lucknow, Lucknow.

Research experience:

Biochemistry and biochemical toxicology, Chemical carcinogenesis and DNA adduct formation, Chemoprevention of carcinogenesis, Xenobiotic biotransformation with reference to toxication and detoxifation mechanisms, Neurotoxicity and neurochemistry, Dermatotoxicology and dermatophamacology, Prostaglandin synthetase dependent xenobiotic metabolism, Phototoxicology, Toxicity of food adulterants and contaminants, Nanotoxicology.

Supervision as Guide:

Supervised 24 research students for PhD dissertation from Lucknow University; Awadh University; Benaras Hindu University; Gorakhpur University and Jamia Hamdard University

Suprvised 12 students for MSc dissertation from various universities

Teaching experience:

Biochemistry courses to undergraduates, Wayne State University, Detroit, September 27, 1982- July 15, 1983.

Food Toxicology; Cancer Biology; and Nanotoxicology courses to AcSIR PhD fellows, 2011- till date.

Editorial:

Editorial Board Member:

Journal of Liver and Pancreatic Diseases (2015- till date)
Austin Journal of Environmental Toxicology (2015- till date)
The Open Biochemistry Journal (2014 - till date)
World Journal of Methodology (2013 - till date)
Prudence J Biochem Biotech (2013 - till date)
International J Clinical Pharmacol Toxicol (2012 - till date)
Journal of Toxicology (2012 - till date)
Biotechnology & Mol Biol Reviews (2012 - till date)
Journal of Environment Protection (2010 - till date)
Journal of Biophysical Chemistry (2010 - till date)
The Open Enzyme Inhibition Journal (2009 - 2014)
Toxicology Mechanisms and Methods (2008 - till date)
Journal of Medicinal Plant Research (2007 - 2008)
Toxicology International (2006 - 2010)
International Journal of Toxicolgy, Occuational and Environmental Health (1989 - 1995)

Member Refree's Pannel:

J. Investigative Dermatology (USA); Environmental Health Prespective (USA); International J. Radiation Research (USA); Biochim Biophy Acta (USA); Toxicology & Applied Pharmacology (USA); Toxicology Letters (UK); Food Chem Toxicol (UK); Arch *fur* Toxicol (Germany); Env Sci Tech (USA); BMC Cancer (UK); Food Res Intl (UK); J Agri Fd Chem (UK); J Chromat A (Germany); J Hazardous Mat (UK); Toxicology Mechanisms & Methods (USA); J. Applied Toxicology (USA); Toxicology Chemistry & Ecotoxicology (Germany); Inflammation (USA); J Hazardous Mat (USA); J. Food Biochemistry (USA); Intl J Environ Res & Public Health (USA); J AOAC Intl (USA); J Food Quality (USA); J. Food Quality; J. Food Sciences; Cell Biochem Function; International Dairy Journal (Netherland); African J. Food Sciences (South Africa); African J Env Sci & Technicol (South Africa); J. Medicinal Plant Research (USA); Indian J. Biochemistry Biophysics; Indian J. Experimental Biology; Indian J. Medical Research; The National Medical Journal of India; Toxicology International; Current Sciences;

Examiner:

MSc (Biochemsirty): Lucknow University, Lucknow
Ch.Charan Singh University, Meerut
M. Phil (Biochem): APS University, Rewa
PhD Thesis: Jamia Hamdard University, New Delhi
Osmania University, Hyderabad
Guahati University, Assam

Member of Societies:

Amercian Association for Cancer Research,
Society for Investigative Dermatology, USA,
International Society for the Study of Xenobiotics,
Society of Biological Chemists, India (Life Member),
Society of Toxicology, India (Life Member),
Indian Pharmacological Society,
Indian Association for Cancer Research (Life Member),
Indian Photobiology Society,
National Academy of Sciences (Life Member)
Indian Academy of Neurosciences (Life Member).
Association of Food Scientists and Technologists, India (Life Member)
Environmental Mutagen Society of India (Life Member, **Executive Member** 2004-08)
U.P. Association for the Science & Technology Advancement (Life Member)
Alumni Association of Department of Biochemistry, Lucknow University
(Life Member, **Treasurer** 2001- till date)
President, Indian Nanoscience Society (2007- 2014)

Member of Regulatory Bodies :

1. Preservatives, Antioxidants, Emulsifying and Stabilizing Agents, Sub committee of Bureau of Indian Standards. FADC (8:2), 1992- till date.
2. Food colours and Flavours, Sub-committee of Bureau of Indian Standards. FADC (8:1), 1992 - till date.
3. Food and Agriculture Division Council (FADC), Committee of Bureau of Indian Standards, 1993- till date.
4. Central Committee for Food Standards (CCFS) on GM Foods, 2001- till date.
5. Working Group to work with European Committee for quantification of GM foods under ISO, Bureau of Indian Standards, 2000- till date.
6. Food Additives Sub-Committee of CCFS, DGHS, New Delhi, 2001- till date.
7. Food Laws and Legal Advisory Sub-Committee of CCFS, DGHS, New Delhi, 2001- till date.
8. Safety Issues & Testing of GM foods Sub-Committee, DGHS, New Delhi, 2001- till date.
9. Shadow Committee on Methods of Food Analysis & Sampling, DGHS, New Delhi, 2006 - till date.
10. Working group on Food Safety, Bureau of Indian Standards, New Delhi, 2006 - till date.
11. Technical committee of ECOMARK, Central Pollution Control Board, New Delhi, 2006- till date.

Nominated representative of Government Organizations :

1. DBT representative on Institutional Biosafety Committee (IBSC) for Indian Institute of Sugarcane Research, Lucknow, 2002-2005.
2. Member, DBT Task Force committee on "Biotechnological approaches for food and nutritional security" July, 2002-June 2004 and April 2006-March 2009

Patents:

1 A process for the preparation of a colour detection test strip useful for the detection of Butter yellow, a toxic adulterant in edible oils.
S.K. Khanna, Mukul Das and P.K. Ray
Complete application No: 309/DEL/92 dated 08.04.1992.
Indian Granting Date: January 04, 2002
Indian Patent No: 185972

2 A process for extraction of argemone alkaloids useful for the detection of adulteration in edible oils
Mukul Das and S.K. Khanna
Complete application No: 3509/DEL/97 dated 08.12.1997
Indian Granting Date: January 01, 2004
Indian Patent No: 189711

3. A novel device with circular electrode for electrophoresis of nucleotides (DNA & RNA) and proteins.
A. Dhawan, H.O. Misra, A.K. Pandey, M. Bajpai, D. Parmar and Mukul Das:
Patent application No 0847/DEL/2008, April 08, 2009.

4. A process for making a circular electrode and product thereof for conducting electrophoresis of nucleotides (DNA, RNA) and proteins.
A.Dhawan, H. O. Misra, A. K. Pandey, M. Bajpai, D. Parmar and Mukul Das:

Singapore Granting Date: April 03, 2013.
Singapore Patent No: 165130

5. An electrophoresis device for separation of charged macromolecules using petri dish.
A.Dhawan, H. O. Misra, A. K. Pandey, M. Bajpai, D. Parmar and Mukul Das:
U.S. Granting Date: January 14, 2014
U.S. Patent No: 8628651

Technologies developed:

1. CD Strip: To detect the presence of Butter yellow, a toxic dye in edible oils

2. FDD : Fluorescent detection device for detecting fluorescent food adulterants/contaminants

3. AO Kit : To detect argemone oil adulteration in mustard oil

Grant-in-aid projects carried out:

1983-84 Co-investigator of the American Skin Cancer Foundation project Goeckerman Therapy of Psoriasis: Mechanisms of skin cancer induction.

1986-1988 Co-investigator of the American Institute for Cancer Research grant Prevention of skin and lung cancer by ellagic acid and tannic acid: Mechanistic studies.

1992-94 Principal Investigator of Department of Science & Technology, New Delhi grant Evaluation of Carcinogenic potential of azo dyes, CI Acid yellow 36, CI Acid Orange 7 and their blend.

1992-94 Co-investigator of Indian Council of Medical Research, New Delhi project “All India coordinated project on evaluation of magnitude and usage pattern of artificial synthetic colours in foodstuffs"”

1995-95 Convener of Indian Council of Medical Research, New Delhi “Training programme on Food Contaminants/Adulterants: Food colours and metals”

1994-96 Co-investigator of Indian Council of Medical Research, New Delhi project” Assessment risk due to intake of artificial colours in children population”.

1994-97 Co-investigator of the Department of Agriculture and Corporation, New Delhi grant A study on the possible health implications on consumption of Lathyrus sativus.

1994-96 Co-investigator of Indian Council of Medical Research, New Delhi grant “Assessment of exposure risk to polyaromatic hydrocarbons through raw, refined and repeatedly heated edible oils”.

1995-98 Co-Principal Investigator of Technology Mission, New Delhi on Oil seeds & Pulses research grant “Development of quick and sensitive on the-spot test/kit to detect the presence of toxic adulterants/contaminants on edible oils”.

1997-98 Co-investigator of WHO-DGHS, New Delhi project “Survey of presence of heavy metals and aflatoxin in food products: Multicentric study”.

1998-2001 Co-investigator of Ministry of Food Processing Industries, New Delhi project “Multicentric study on intake of food colours”.

1999-2002 Principal Investigator of Technology Mission on Oilseeds & Pulses, New Delhi research grant "Toxicity and preventive studies on Epidemic Dropsy caused by consumption of mustard oil contaminated with argemone oil".

1999-2002 Principal Investigator of Technology Mission on Oil seeds & Pulses, New Delhi research grant" Studies on polycyclic aromatic hydrocarbon residues in edible oils".

1999-2002 Principal Investigator of Technology Mission on Oilseeds & Pulses, New Delhi research grant "Validation of Argemone Oil Detection Kit".

1999-2001 Co-Principal Investigator of Indira Gandhi Institute of Development Research grant "A study of environmental exposure to polycyclic aromatic hydrocarbons in economically under previledged population of urban/rural areas of Uttar Pradesh".

2000-2001 Principal Investigator of Tata Memorial Hospital, Mumbai project "Monitoring of edible oil samples from Gall Bladder carcinoma/stone patients".

2000-2001 Co-investigator of WHO-DGHS, New Delhi project "Survey of occurrence of metal contaminants, lead, cadmium, arsenic and tin in infant milk substitute".

2002-2004 Principal Investigator of Technology Mission on Oilseeds & Pulses, New Delhi research grant "Removal strategies for polycyclic aromatic hydrocarbons in contaminated edible oils".

2002-2003 Principal Investigator of WHO-DGHS, New Delhi project "Survey study for the pattern and prevalence of permitted and non-permitted colours in various food products"

2002-2003 Principal Investigator of WHO-DGHS, New Delhi project "Survey on pesticide residues in food products".

2003-2005 Project Coordinator of Department of Biotechnology, New Delhi project 'Development and validation of protocols for allergenicity evaluation of genetically modified foods'.

2007-2010 Project Coordinator of Department of Biotechnology, New Delhi project 'Development of molecular tools for detection of genetically modified foods'.

2008-2011 Principal Co-investigator of Department of Science & Technology, New Delhi project 'Fate of nanomaterials in biological systems'.

2007-2012 Principal Investigator of CSIR-Supra Institutional Project (CSIR-SIP 08) entitled 'Molecular mechanism of argemone oil toxicity and its mitigation by antioxidants'.

2007-2012 Principal Investigator of CSIR-Networkl Project (CSIR-NWP 17) entitled 'Detection of food contaminants and their effects on health'.

2012-2017 Principal Investigator of CSIR-INDEPTH Project (BSC 0111) entitled 'Elucidation of Molecular mechanism of toxicity of *Cassia occidentalis'.*

2012-2017 Principal Investigator of CSIR-NANOSHE Project (BSC 0112) entitled 'Safety and efficacy of nano-encapsulated bio-antioxidants*'.*

<u>Industry Sponsored projects carried out</u>:

1993 Co-investigator of Central Cattle Breeding Farm, Orissa project "Identification of toxic constituent(s) in two animal feed oil cake samples.

1993 Co-investigator of Thirumalai Chemicals, Madras project "Safety guidelines for approval of DL-Malic acid as permited food additive under PFA Rules, India.

1993 Co-investigator of Sengar Poultry Farm, Etawah project "Identification of toxic constituent(s) in animal feed responsible for toxicity in the poultry birds".

1994 Co-Principal Investigator of Zafrani Zarda Manufactuers Association, Delhi project "Survey studies on the consumption pattern of Menthol through Pan Masala.

1994 Co-Principal Investigator of Colour Chem Ltd, Bombay project “Studies on acute safety evaluation of Acesulfame-K in rat.

1994 Co-Principal Investigator of Colour Chem Ltd, Bombay project “ Studies on acute safety evaluation of Acesulfame-K in mice”

1995 Co-investigator of Indian Petrochemicals Corporation Ltd, Vadodara project “Evaluation of consumer safety, occupational and ecological risks on application of treated industrial effluents for irrigation of crops (A joint ITRC programme)”.

1996 Co-Principal Investigator of Colour Chem Ltd, Bombay project “Standardization and applicability of analytical methodology on Acesulfame-K”

1997 Co-investigator of East India Pharmaceuticals Works, Calcutta project “Aflatoxin residues profile of herbal culture filtrates”.

1995 Co Principal Investigator of Colour Chem Ltd, Sub of Hoechst AG, Bombay project “Safety evaluation studies on blend of two artificial sweeteners: Acesulfame-K and Aspartame”.

1996 Co Principal Investigator of Parry’s Confectionery Ltd, Chennai project “Analytical standards/contaminants in CRUMBLE sugar confectionery”.

1996 Co Principal Investigator of Tata Tea Ltd, Calcutta project “Accelerated storage stability studies on sugar-Aspartame blend vis-a-vis evaluation of shelf-life and health safety of the project under variable conditions of temperature and humidity”.

1998 Co-investigator of K.K. Dye Chem Pvt Ltd Budivada, A.P project “Assessment of Napthol AS-G, an azoic coupling component as part of banned azo dyes”.

1998 Co investigator of Cattle Feed Plant, Pradeshik Cooperative Dairy Fedn. Ltd, Merrut project “Identifation of aflatoxin and argemone alkaloids in mustard oil cake”.

1998 Co-investigator of Cattle Feed Plant, Pradeshik Cooperative Dairy Fedn. Ltd, Merrut project “Identifation of aflatoxin and argemone alkaloids in mustard oil cake and deoiled mustard cake.

1999 Co Principal Investigator of Bush Boake Allen Ltd, Chennai project “Toxicological profile of Sunset yellow FCF, Tartrazine and Carmoisine used in Indian sweets”.

1999 Co-investigator of Jute Manufactuers Development Council, Calcutta project “Safety evaluation studies on food grade Jute products”.

2000 Co investigator of Central Salt and Marine Chemicals & Research Institute, Bhavnagar project “Evaluation of the modified Jojoba body cream”.

2000 Co-investigator of Fragrance and Flavour Development Centre, Kannauj project “Toxicological study of Neem based cold cream”.

2002 Principal Investigator of Indian Lac Research Institute, Ranchi project “Safety evaluation studies on lac dye for food usage”.

2012 Principal Investigator of Indian Council of Medical Research, New Delhi, project “Analysis of oxytocin in ampules of oxytocin for animal and human use”.

2012 Principal Investigator of Indian Institute of Vegetable Research, Varanasi project “Analysis of oxytocin in bottle guard”.

2013 Principal Investigator of Organic Manure Mills PVT Ltd, Vellore District, Tamilnadu project “Analysis of ochratoxin in bonemeal sample”.

SIGNIFICANT R&D ACHEIVEMENTS

1. Studies on Xenobiotic Metabolism

Metabolism of xenobiotics in hepatic and extrahepatic tissues is of importance in expressing their pharmacological and toxicological action. The xenobiotic metabolizing enzyme system requires NADPH and molecular oxygen for catalytic activity, and has its terminal oxidase; the microsomal membrane bound heme protein, cytochrome P-450.

His studies indicated that benzo(a)pyrene (BP), a ubiquitous polycyclic aromatic hydrocarbon (PAH) pollutant, enters brain after parenteral administration (29). Cytochrome P-450 (P-450) dependent aryl hydrocarbon hydroxylase (AHH) activity biotransform PAHs including BP to various metabolites. The properties of P-450 dependent AHH activity in brain microsomes and mitochondria were characterized (1,2,7,8). **Brain was in fact, the first tissue to show higher mitochondrial AHH activity as compared to microsomal activity** (2,8,70). It was hypothesized that P-450 in brain mitochondria may be responsible for steroidogenesis as other investigators had shown the presence of adrenodoxin like ferridoxin protein in brain mitochondria. AHH enzyme was found to be responsible to metabolize PAHs to their highly reactive products, which can then bind to cellular DNA to initiate the process of carcinogenesis (26). The metabolic products of PAHs may also undergo further biotransformation by cytosolic detoxification enzymes such as glutathione-S-transferase (GST) which has been characterized in brain (3,70). Furthermore, this enzyme system in brain was found to be regulated by sex hormones (10) and neurotoxicants including acrylamide and styrene (4,6,12,15,23). Subsequent studies have shown that brain can metabolize ethoxycoumarin and ethoxyresorufin suggesting the multiplicity of P-450 (65,83) and that the neuronal cells contained 2-3 fold higher activity of cytochrome P-450 dependent enzymes as compared to glial cells in brain (71). This enzyme system may have some physiological role in the neurotoxicity of drugs and chemicals selectively acting on the CNS.

Skin was considered to be inert for xenobiotic metabolosim. Our studies suggest that skin of rodents are equipped with phase II and cytochrome P-450 monooxygenases, which metabolizes various xenobiotics including polycyclic aromatic hydrocarbons to ultimate toxic metabolites (27,37,45,53), which were later used as machinaries for carcinogenic index due to their binding potential to DNA molecules.

Studies suggest that metabolism of alkoxyphenoxazone compounds including pentoxyresorufin and ethoxyresorufin by P-450 IIB1/2 and IA1/2 isozymes can be monitored simultaneously alongwith electron donor, spectrophotometrically (129). The approach was found to be useful for not only estimating the alkoxyresorufin-O-dealkylase activities, but also to study the stoichiometry of enzyme reaction in the same incubation system (124). Further, the mechanism of modulation of stoichiometry of alkoxyphenoxazone metabolism with special reference to cytosolic quinone reductase was suggested (141).

2. Studies on carcinogenesis and protection

It is now widely accepted that the initiation of carcinogenesis by xenobiotics relates to metabolic activation of the parent compound to highly reactive ultimate carcinogenic metabolites, which bind to DNA. This knowledge has led to the search for non-toxic inhibitors of these metabolic processes.

Studies of the applicant suggested that naturally occurring plant phenols, ellagic acid, tannic acid, quercetin, myricetin and anthraflavic acid have the antitumorigenic activity against 7,12-dimethylbenzanthracene, benzo(a)pyrene, 3-methylcholanthrene (3-MCA) and N-methyl–N- nitrosourea induced skin carcinogenesis (16,36,59,63). The possible mechanism of the action of these plant phenols may be due to alteration in metabolic activation and in target tissue macromolecular binding to carcinogenic species (17,18,31,34,46,49,50,51). A series of newly synthesized compounds, polycyclic aza-oxa and aza-oxa-thia heteroarenes, two compounds showed anti carcinogenic potential against liver cancer while three showed anti-carcinogenic potential in intestinal cancer (254).

Aflatoxin B1 (AFB1) has been shown to possess skin tumor initiating activity in mouse model. Moreover, only pre-neoplastic changes in hepatic tissue were observed in mice. The basic mechanism for not producing hepatic tumors in mouse was due to the fact that glutathione-S- transferase activity was relatively higher as compared to rats thereby eliminating the main carcinogenic metabolite, AFB1-8,9-epoxide. This may explain the reason

for rats to be susceptible towards the development of hepatic cancer by AFB1 (154).Futher, *Ocimum sanctum* leaf extract was found to inhibit the process of skin carcinogenesis induced by AFB1, 3MCA and benzo(a)pyrene which was due to antiproliferative activity in cells (164). Visualizing the importance of newer mycotoxins contamination in foodstuffs and the relevance of fungal growth in tropical countries due to humid conditions, work has been initiated on dermal toxicity as suggested by WHO/FAO. Studies on patulin, citrinin, ochratoxin and deoxynivalenol indicate toxicity and carcinogenicity in skin by different signaling mechanisms (178,202,208,220,227,240,259).

3. Studies on oscillation reactions

Earlier investigations had suggested that only specific chemicals/ substrates during chemical or biological reactions show oscillatory phenomenon. My recent work have indicated that not only the specific but all the chemicals and biological molecules involved or participating in chemical/biological reactions exhibited a state of oscillation (96,114,125,149). This challenging area needs to be explored for not only studying the mechanism of toxicity of xenobiotics and/or certain diseased conditions but can lead to suggest the protective response of various compounds against toxic manifestations and diseases. Also, this aspect may find application in clinical diagnosis of the patients.

4. Biochemical toxicity of Argemone oil, an adulterant in mustard oil

Consumption of argemone adulterated mustard oil is known to cause Epidemic Dropsy. The problem of adulteration of mustard oil with argemone still exists as evidenced by Dropsy at Barabanki in 1988, Delhi in 1998, Kannauj in 2002 and Lucknow in 2005. The toxicity of argemone oil has been attributed to benzophenanthridine alkaloids, sanguinarine and dihydrosanguinarine (105). Since, biochemical mechanism of toxicity of argemone oil was not understood; the systematic therapeutic approach towards the disease is not known (111).

The mechanism of argemone oil toxicity was explored and studies suggested that liver, lungs kidney and heart were the target sites for argemone oil intoxication (66). Argemone oil caused a decrease in hepatic glycogen level, which may be due to the activation of glycogenolysis leading to accumulation of pyruvate in blood (66, 105). The increase in puruvate uncouples oxidative phosphorylation leading to breathlessness in patients (105). Sanguinarine inhibited Na^+K^+ATPase activity of the liver and intestine, thereby causing a decrease in active transport of glucose (89). Further, results indicate that Argemone oil and sanguinarine have genotoxic and tumor initiating potential and shall be hazardous if human babies are smeared with mustard oil contaminated with Argemone oil (140,147,151). Argemone oil induced loss of hepatic cytochrome P-450 and impairment of Phase I and Phase II enzymes have been shown to be responsible for the slow metabolism of its toxic alkaloids (73,172). The delayed appearance of metabolite (benzacridine) and the parent compound in urine and feces also confirmed the slow biometabolic elimination of the alkaloid (88). Argemone oil caused enhanced lipid peroxidation with concomitant depletion of free glutathione thereby indicating oxidative stress (60,72,73,75,148,168,169). The involvement of oxidative stress was further confirmed by overexpression of heat shock protein hsp 70 in Drosophila melanogaster (123). Studies suggested that singlet oxygen and hydroxyl radicals were involved in argemone oil toxicity which led to oxidative damage of proteins, lipids and DNA (75,140,148)). Subsequent studies have shown that AO causes cancer in skin following topical application and responsible for gall bladder cancer if consumed orally (151,211). Several bioantioxidants were shown to protect against argemone oil induced toxicity in experimental animals (72,75,157,163). The protective efficacy of these bioantioxidants were examined during Barabanki epidemic and showed beneficial effect on patients (87,122) and experimentally induced carcinogenesis (231). Favorable response of this mode of therapy was also noted during the 1998 Epidemic Dropsy in Delhi (111), Kannauj (148) and Lucknow (163).

5. Studies on dye intermediate, Benzanthrone / 3-Bromobenzanthrone:

Workers coming in contact with benzanthrone, a textile dye intermediate, complain of burning sensation, erythema and hyperpigmentation of the skin loss of appetite, intolerance to fatty foods fatigue weakness, weight loss, gastritis and decreased sexual potency.

Studies on benzanthrone have shown that it is metabolized by acting as a new substrate of hepatic P-450 to at least 7 metabolites (64). *In vivo* administration of benzanthrone to rats, showed 5 of these metabolites excreted in urine (64). Benzanthrone acted as a type I substrate for P-450 and inhibited P-450 and its dependent monoxygenases in a concentration dependent manner (74).

A striking observation noted was the depletion of ascorbic acid in serum and adrenals of exposed animals (90,119). Subsequent studies have shown that in the presence of extraneous ascorbic acid, the urinary and fecal clearance rate of benzanthrone/or metabolite(s) was enhanced with concomitant decrease in organ retention in different murine species (77,81,86). Oral supplementation of ascorbic acid to benzanthrone administered guinea pigs resulted in marked improvement of histopathological and biochemical changes observed in liver, testis, kidney and urinary bladder (93). Benzanthrone was shown to possess a weak tumour initiating activity, which was completely abolished by ascorbic acid treatment (236). Recently, he has shown that 3-bromobenzanthrone is more toxic than its parent compound (113,130,134). The depletion of ascorbic acid and skin irritating potential (113,130) is much more in 3-bromobenzanthrone when compared to benzanthrone and may be due to generation of Br• radical, which have far reaching consequences (134).

A regular daily intake of ascorbic acid by workers in benzanthrone/ 3-bromobenzanthrone manufacturing units can thus be prescribed as protective measure.

6. Mechanism of toxicity of polycyclic aromatic hydrocarbon mixtures derived from repeatedly fried edible oils:

Polycyclic aromatic hydrocarbons (PAHs) are ubiquitous environmental pollutants. They are formed through a number of combustion processes and are present as a complex mixture of many individual PAHs. Studies of various environmentally relevant matrices, such as coal combustion effluent, motor vehicle exhaust, used motor lubricating oils and tobacco smoke have shown that PAHs in these mixtures are mainly responsible for their carcinogenic potential. Vegetable oils are reported to be naturally free of PAHs, and contamination is due to technological processes like smoke drying of oil seeds or environmental sources such as deposition from exhaust gases of traffic. In a recently conducted study in India, 296 oil samples comprising of coconut, groundnut, hydrogenated vegetable, linseed, mustard, olive, palm, refined vegetable, rice bran, safflower, sesame, soybean, and sunflower showed that 88.5% samples were contaminated with different PAH (146). Of 262 contaminated edible oil samples, 66.4% of the samples showed PAH content of more than the 25 µg/kg recommended by the German Society for Fat Science. The total PAH content was highest in virgin olive oil (624 µg/kg) and lowest in refined vegetable oils (40.2 µg/kg). The maximum content (265 µg/kg) of heavy PAH was found in olive oil and the minimum (4.6 µg/kg) in rice bran oil. Phenanthrene was present in 58.3% of the oil samples analyzed, followed by anthracene (53%). Among the heavy PAH, benzo(e)pyrene was observed in 31.2% of the samples followed by benzo(a)pyrene (25.5%). The intake of PAH was highest through olive oil (20.8 µg/day) followed by soybean oil (5.0 µg/day) and lowest through refined vegetable oil (1.3µg/day). Based on these monitoring studies, international and national guidelines for permissible levels of PAH can be prepared so as to restrict the intake of these toxic contaminants. Recent studies have shown that repeatedly fish fried oil generates considerable amount of PAHs which are cytotoxic due to enhanced formation of a precursor (BP-7, 8-diol) of ultimate carcinogenic species, diol epoxide, thereby causing increased DNA binding, apoptosis, cell cycle arrest and induction of p^{53} and p^{21waf1} which are responsible for initiation of carcinogenesis in experimental animals (153,155,159,160).

7. Detection of Oxytocin(OT) in milk: Toxicological implications of OT in young immature rats

Oxytocin (OT), a biological hormone, has physiological role for performing specific functions at different stages of life. Under normal physiological condition in lactating mothers, OT causes contraction of the myoepithelial cells which surrounds the milk alveoli in the mammary gland for milk let-down. In Indian subcontinent, OT ampules, commercially known as pitocin or syntocinon, are indiscriminately used for enhanced milk let-down following intramuscular injections to cattle. It has been presumed that due to small size (OT,1Kd) there

is a possibility that it crosses blood-milk barrier and reaches into the milk thereby causing toxicological consequences during non physiological exposure especially in children.

We have therefore developed a new extraction method for the determination of oxytocin in milk by enzyme immune assay or HPLC. The extraction of OT in milk involves two steps: (i) TCA precipitation of milk proteins, and (ii) Solid phase extraction cleanup process. OT was found to be stable against adverse temperature (up to 100ºC), pH (2 to 10) and simulated gastric fluid digestibility assay suggesting that OT is not degraded either by boiling or by digestive enzymes present in gastrointestinal tract thereby indicating the possible risk in humans especially children (228). Further, in a total of 55 milk samples (39 milkman & 16 branded) OT contamination in milkman samples was found to be 21 pg/mL to 18.9 ng/mL with the mean value of 8.9 ng/mL. The average daily intake of OT in terms of µg/day/person was highest (2.3-2.4 µg/day/person) in 1-3 year age group, which may have deleterious effects (256).

Subsequent studies were carried out to investigate the anomalies in different organs following daily oral administration of OT (1 and10 ng/100 µl) to young immature rats (10 day old) for 25 days. OT exposure resulted in increase in ovarian weight, γ globulin, total number of follicles, number of corpus luteum; indicating higher ovulation at early period when compared to control (untreated rat pups). The mechanism for enhanced ovulation involves over-expression of pEGFR followed by downstream pERK1/2 and subsequently increased ovarian PGE-2 along with enhanced COX-2, HAS-2 & TSG-6 (matrix deposition proteins) and GDF-9 (oocyte factor) proteins, suggesting that oral exposure to OT may affect the physiology and function of the ovary (256).

8. Association between children death and consumption of Cassia occidentalis seeds: Clinical and experimental investigations

During the past decade an illness in young children has been observed in several adjoining areas of western UP and Uttaranchal (India), with the involvement of muscle, liver and brain resulting in almost 70% mortality. The outbreak was earlier diagnosed as acute encephalitis of unknown viral etiology. Our recent studies showed that the disease, hepatomyoencephalopathy (HME), is related to the consumption of Cassia occidentalis (CO) seeds. This was proved in an investigation where CO seeds (0.5, 1 and 2% w/w) were given to wistar rats in diet. After 28 days it was observed that CO seeds caused significant increases in the serum markers along with histopathological lesions in hepatic tissue. CO consumption also showed decrease in grip strength, vacuolization and myopathy of skeletal muscles along with increases in serum creatinine and creatinine phosphokinase suggesting muscular damage in animals. Neuronal damage in CO treated animals was evident by a marked increase in glial fibrilar acidic protein and decrease in β-tubulin. The experimental findings of CO consumption showed liver, muscles and brain to be the target organs, which were similar to that of the clinical data of poisoning cases, and are one of the etiological factors in children population suffering from HME in India (248). Microarray studies indicated that exposure of CO (0.5%) seeds in diet to rats differentially regulated 60 transcripts belonging to various metabolic pathways including, oxidative stress, xenobiotic metabolism, carbohydrate metabolism, cell cycle, apoptosis etc. The expression of AKT1, CAT, SOD1, CYP1A1, CYP2B1, TGF-β, BAX, CREB1, JNK1 and IL-6 were validated by the qRT-PCR (260).

The toxic compounds in the CO seeds were characterized to be physcion, emodin and rhein and further quantified in the body fluid of HME patients and experimental animals exposed to CO seeds. GC-MS analysis of chloroform fraction of methanol extract of CO seeds revealed the presence of three anthraquinones viz. physcion, emodin and rhein having m/z 413, 471 and 485. In addition, other anthraquinones like aloe-emodin (m/z: 471) and chrysophanol (m/z: 383) were detected in the hexane and butanol fractions of methanol extract of CO seeds. Interestingly, these five anthraquinones were detected in the serum and urine samples of HME patients and experimental rats treated with CO seeds. Further, rhein was found to be the most toxic compound with an IC_{50} of 50-103µM in rat primary hepatocytes and HepG2 cells, followed by emodin, aloe-emodin, physcion and chrysophanol. These results suggest that anthraquinone aglycones are the etiological agents responsible for CO induced HME; and that the presence of these compounds in the urine and blood samples of patients and rats exposed to CO seeds may serve as diagnostic marker of the disease (Chem Res Toxicol, 2015, in press).

The molecular mechanism of toxicity of rhein involves the generation of reactive oxygen species (ROS) and intracellular Ca++ as an early event while modulation of mitochondrial membrane potential and intracellular glutathione (GSH) as a late event. At molecular level rhein caused DNA damage resulting in over expression of γ-H2AX protein thereby causing enhancement of p53 and p21 leading to intrinsic pathway mediated apoptosis involving Bax, cytochrome c, caspases 3, 9 and Poly ADP ribose polymerase (PARP). Further, it was observed that rhein induced ROS generation is also involved in modulation of signaling molecules like MAPK including ERK1/2, p38 and JNK, mitochondrial energetics proteins including complex II-V, pAMPK, Sirt-1 and induction of cytochrome p450 isozymes. Among the various protective agents, cyclosporine A (CSA) at 100 nM concentrations was found to be most effective in preventing apoptosis in hepatocytes by interfering in various metabolic pathways (Chem Res Toxicol, 2015, in press).

9. Nanotoxicology:

A new science of nanotechnology has emerged, the products of which is being used in all the spheres of life. Due to the small size of nanoparticles the reactivities are entirely different as compared to their bulk material. We have initiated work related to nano material toxicity and have shown that zinc oxide in nano form used in cosmetics is toxic to skin cells by producing reactive oxygen species (182). Subsequent studies on zinc oxide nanoparticles showed immunotoxic responses (241,244,253,255). Work on nanomaterials used in food industries and their efficacy and toxicity have been initiated (180,181) and guidelines for safe handling of nanomaterials have been prepared (196).

10. Food quality monitoring, surveillance and health risk assessment:

Regular food quality assessment surveys sponsored by ICMR, MFPI, DGHS-WHO, TMOP&M and on our own initiatives have been undertaken so as to authenticate quality standards and identify toxic adulterants in various foodstuffs as part of our social commitment towards consumer safety, awareness and educational programme. The nature and proportion of adulteration is at times high enough to cause serious health problems to the unsuspecting consumer and feedback helps regulatory agencies to formulate standards, streamline vigilance and avoid mishaps (101,120,137,150,152,161,162,165-167,176,186,188,189,199, 212). So far all the states of India excluding Jammu & Kashmir and Arunachal Pradesh have been covered for monitoring of food samples. Based on the work the following legislative decisions were undertaken: (i) ban on sale of loose food colours, (ii) compulsory ISI certification of food colours, (iii) delisting of three colours from the prescribed list, (iv) curtailment of maximum allowable limits of colours in food, (v) prescribed the limits of nickel in hydrogenated vegetable oils, (vi) prescribed the limits of menthol in pan masala and (vii) initiation of formulation of standards for heavy metals in food grade silver foil.

Further, quick detection kits have been developed for monitoring of a toxic dye, Butter Yellow and Argemone oil in edible oils and patented. These kits can be used by consumers themselves and have been utilized during 1998 Delhi Dropsy for expeditious clearance of withheld mustard oil tankers on the directives of Delhi Government. Apart from these several laboratoty analytical procedures for quantitation of additives, contaminants and adulterants have been developed (104,121,124,139,177,192,206).

The occurrence of Aflatoxin M1 (AFM1) contamination in Indian infant milk products and liquid milk samples was carried out in a total of 87 samples in categories of infant milk food, infant formula, milk based cereal weaning food and liquid milk samples. The results showed that the incidence of contamination of AFM1 was of the magnitude of 87.3%. The range of contamination of AFM1 was comparatively higher in infant milk products (65-1012 ng/L) than liquid milk (28-164 ng/L). Almost 99% of the contaminated samples exceeded the European Communities/Codex Alimentarius recommended limits (50 ng/L), while 9% samples exceeded the prescribed limit of US regulations (500 ng/L). The extrapolation of AFM1 data to estimate the Aflatoxin B1 (AFB1) contamination in dairy cattle feedstuffs indicated that the contamination may range from 1.4-63.3 μg/Kg with a mean of 18 μg/Kg which is substantially higher than the directive of European Communities regulation (5 μg/Kg). The results suggest a need to introduce safety limits for AFM1 levels (480 ng/Kg) in infant milk products and liquid milk under Prevention of Food Adulteration Act of India as well as to prescribe the levels of

AFB1 in dairy cattle feedstuffs so as to minimize the health hazard risk in infant population at large (137).

During the outbreak of tricresyl phosphate (TCP) poisoning (1988) in which almost 600 victims who consumed aduterated rapeseed oil in the Behala area of the south- west outskirts of Kolkata were clinically examined (68). The follow-up investigations showed that patients consuming alcohol had slower recovery. The mechanism of slower recovery was linked to the fact that alcohol caused induction of a specific P-450 isozyme IIE1 which may be responsible for the production of cyclic metabolite of TCP which is 5 times more toxic than the parent compound (82).

Based on experimental work on bio-antioxidant protection against Argemone oil induced changes, bioantioxidant therapy was first time attempted in 1988 Epidemic Dropsy patients at Barabanki (87). This mode of therapy was again used in 1998 Dropsy at Delhi (111,122) and recently in July 2002 outbreak of dropsy at Kannauj and in 2005 at Lucknow. During August 1998 loose mustard oil samples collected from outskirts of Lucknow showed almost 25% samples contaminated with argemone oil. This information led to banning of sale of mustard oil in Uttar Pradesh and subsequently several others states and averted the occurrence of Dropsy in the region.

List of Publications

Xenobiotic Metabolism	
(1,2,3,7,8,10,26,28,29,40,43,44,45,48,53,54,65,71,83,124,141, 153,155)	**23**
Neurotoxicants	
(4,5,6,9,12,13,14,15,22,23,38,52,68,82)	**14**
Carcinogenesis & Protection	
(16,17,18,20,21,31,34,36,37,41,46,47,49,50,51,55,58,59,62,63,159,160,198,218,254,271)	**26**
Photobiology	
(25,27,32,42)	**04**
Prostaglandin/Leukotrienes	
(19,61)	**02**
Argemone oil/alkaloid	
(60,66,72,73,75,87,88,89,111,123,140,147,148,151,156,157,163,168,169,172,182, 187,190,191,193,211,213,231,252)	**29**
Mycotoxins	
(137,154,164,176,178,202,208,212,220,225,227,240,242,259)	**14**
Dyes and Dyes Intermediates	
(64,67,74,77,79,81,86,90,92,93,94,95,97,98,103,106,107,108,109,112,113, 119,130,134,143,145, 236, 270)	**28**
Oscillation Reactions	
(96,114,125,149)	**04**
Oxytocin	
(234, 256)	**02**
Methods Development	
(104,121,128,129,139,177,192,206,221,228,268)	**11**
Metals	
(30,84,150,152)	**04**
Nanotoxicology	
(183,196,241,244,245,253,255,261,263)	**09**
Pesticides	
(110, 127)	**02**
Plant Toxins (Lathyrus, Cassia occidentalis & Litchi)	
(131,132,136,184,248,257,260,272,273)	**09**
Allergenicity & Immunotoxicity	
(171,185,194,197, 200, 205, 210,215,216,229,233,237,243,246,247,249,250,264,265,266)	**20**
Surveys	
(101,120,146,158,161,162,165,166,167,170,186,188,189, 199,217,230)	**16**
Chapters in Books	
(11,24,35,56,57,70,76,115,116,117,122,173,258)	**13**
Reviews	
(39,69,78,80,85,91,99,100,105,126,135,142,179, 180,181,204, 207,214,219,222,224,226, 232,235,238,251,262,267,269)	**29**
Popular science articles	
(33,102,118,133,138,144,174,175,195,203,209,223,239)	**13**
Books	
(201)	**01**
	Total: 273

PUBLICATIONS

1. Mukul Das, P.K. Seth and H. Mukhtar: Characterization of microsomal aryl hydrocarbon hydroxylase of rat brain. J. Pharm. Exp. Ther. 216, 156-161 (1981). **[IF: 5.947]**

2. Mukul Das, P.K. Seth and H. Mukhtar: NADH dependent inducible aryl hydrocarbon hydroxylase activity in rat brain mitochondria. Drug Metab. Dispos. 9, 69-70 (1981). **[IF: 3.913]**

3. Mukul Das, R. Dixit, P.K. Seth and H. Mukhtar: Glutathione S-transferase activity in brain: Species, sex, regional and age differences. J. Neurochem. 36, 1439-1442 (1981). **[IF: 4.91]**

4. Mukul Das, P.K. Seth and H. Mukhtar: Effect of certain neurotoxins and mixed function oxidase modifiers on glutathione-S-transferase activity of rat brain. Res. Comm. Chem. Pathol. and Pharmacol. 33, 377-380 (1981). **[IF: 0.83]**

5. Mukul Das, R. Dixit, M. Mushtaq, S.P. Srivastava and P.K. Seth: Effect of styrene on hepatic mixed function oxidases, glutathione content and glutathione-S-transferase activity in rats. Drug and Chem. Toxicol. 4, 219-227 (1981). **[IF: 3.207]**

6. R. Dixit, Mukul Das, M. Mushtaq, S.P. Srivastava and P.K. Seth: Depletion of glutathione content and inhibition of glutathione-S-transferase and aryl hydrocarbon hydroxylase activity of rat brain following exposure to styrene. Neurotoxicol. 3 142-145 (1982). **[IF: 3.126]**

7. Mukul Das, H. Mukhtar and P.K. Seth: Aryl hydrocarbon hydroxylase and glutathione-S-transferase activities in discrete regions of rat brain. Toxicology Letters 13, 125-128 (1982). **[IF: 3.581]**

8. Mukul Das, P.K. Seth, R. Dixit and H. Mukhtar: Aryl hydrocarbon hydroxylase of rat brain mitochondria: Properties of, and effect of inducers and inhibitors on enzyme activity. Archs. Biochem. Biophys. 217, 205 - 215 (1982). **[IF: 3.33]**

9. S.P. Srivastava, Mukul Das, M. Mushtaq, S.V. Chandra and P.K. Seth: Hepatic effects of orally administered styrene in rats. J. Appl. Toxicol. 2, 219 - 222 (1982). **[IF: 2.597]**

10. Mukul Das, A.K. Agarwal and P.K. Seth: Regulation of brain and hepatic glutathione-S-transferase activity by sex hormones in rats. Biochem. Pharmacol. 31, 3927-3930 (1982). **[IF: 4.889]**

11. Mukul Das P.K. Seth and H. Mukhtar: Aryl hydrocarbon hydroxylase activity in rat brain mitochondria. *In: Cytochrome P-450, Biochemistry, Biophysics and Environmental Implications (E. Hietanen, M. Latinen and O. Hanninen eds) 1982 Elsevier Biomedical Press*, pp 671- 674.

12. Mukul Das, H. Mukhtar and P.K. Seth: Effect of acrylamide on brain and hepatic mixed function oxidases and glutathione -S-transferase(s) in rats. Toxic. Appl. Pharmacol. 66, 420- 426 (1982). **[IF: 4.722]**

13. Mukul Das, S.P. Srivastava and P.K. Seth: Effect of styrene on glutathione content and some xenobiotic metabolizing enzymes of rat kidney. Acta Pharmacol. Toxicol. 52, 47-50 (1983). **[IF: 1.335]**

14. S.P. Srivastava, Mukul Das and P.K. Seth: Enhancement of lipid peroxidation in rat liver on acute exposure to styrene and acrylamide: A consequence of glutathione depletion. Chem Biol. Interact. 45, 373- 380 (1983). **[IF: 3.10]**

15. S.P. Srivastava, Mukul Das, H. Mukhtar, O.P. Malhotra and P.K. Seth: Effect of acrylamide on glutathione-S-transferase activity in discrete regions of rat brain. Bull. Environ. Contamin. Toxicol. 32, 166-170 (1984). **[IF: 1.139]**

16. H. Mukhtar, Mukul Das, B.J. DelTito and D.R. Bickers: Protection against 3-methylcholanthrene-induced skin tumorigenesis in Balb/c mice by ellagic acid. Biochem. Biophys. Res. Commun. 119, 751-757 (1984). **[IF: 3.16]**

17. Mukul Das, D.R. Bickers and H. Mukhtar: Plant phenols as in vitro inhibitors of glutathione-S-transferase(s). Biochem. Biophys. Res. Commun. 120, 427 - 433 (1984). **[IF: 3.16]**

18. H. Mukhtar, Mukul Das, B.J. DelTio and D.R. Bickers: Epidermal benzo(a)pyrene metabolism and DNA-binding in Balb/c mice: Inhibition by ellagic acid. Xenobiotica 14, 527-531 (1984). **[IF: 2. 799]**

19. L.J. Marnett, P.H. Siedlik, R. Ochs, W.R. Pagels, Mukul Das K.V. Honn, R. Warnock, B.E. Tainer and T.E. Eling: Mechanism of the stimulation of prostaglandin H synthase and prostacyclin synthase by the antithrombotic and antimetastatic agent, nafazatrom. Molecular Pharmacol. 26, 328- 335 (1984). **[IF: 6.58]**

20. H. Mukhtar, B.J. DelTito, Mukul Das, E.P. Cherniack, D.R Bickers: Clotrimazole an inhibitor of rat epidermal benzo(a) pyrene metabolism, DNA binding and skin carcinogensis in mice. Cancer Res. 44, 4233 - 4240 (1984). **[IF: 8.61]**

21. H. Mukhtar, B.J. DelTito, C.L. Marcelo, Mukul Das and D.R. Bickers: Ellagic acid: a potent inhibitor of benzo(a)pyrene metabolism and its subsequent glucurodination, sulfation and DNA binding in Balb/c mouse keratinocytes. Carcinogenesis 5, 1565-1571 (1984). **[IF: 5.702]**

22. R. Dixit, Mukul Das, P.K. Seth and H. Mukhtar: Interaction of acrylamide with glutathione in rat erythrocytes. Toxicology Letters 23, 291-298 (1984). **[IF: 3.581]**

23. S.P. Srivastava, P.K. Seth, Mukul Das and H. Mukhtar: Effect of mixed function oxidase modifiers on neurotoxicity of acrylamide in rats. Biochem. Pharmacol. 34, 1099- 1102 (1985). **[IF: 4.889]**

24. H. Mukhtar, Mukul Das and D.R. Bickers: Alteration in benzo (a)pyrene metabolism and its DNA adduct formation in skin of mice chronically exposed to ultraviolet-B radiation. *In: Radiation Carcinogenesis and DNA Alteration. (F.J. Burns,A.C. Upton and G. Silini eds) Plenum Press, New York,* 1987, pp 233- 241.

25. Mukul Das, R. Dixit, H. Mukhtar and D.R. Bickers: Role of reactive oxygen species in the photodestruction of hepatic microsomal cytochrome P-450 and associated monooxygenases by hematoporphyrin derivative. Cancer Res. 45,608-615 (1985). **[IF: 8.61]**

26. Mukul Das, S.P. Srivastava, P.K. Seth and H. Mukhtar: Brain microsomal enzyme mediated covalent binding of benzo(a)pyrene to DNA. Cancer Lett. 25, 343-350 (1985). **[IF: 4.864]**

27. Mukul Das, D.R. Bickers, R.M. Santella and H. Mukhtar: Altered patterns of cutaneous xenobiotic metabolism in ultraviolet-B induced squamous cell carcinoma in SKH-1 hairless mice. J. Invest. Dermatol. 84, 532-536 (1985). **[IF: 6.314]**

28. P. Asokan, Mukul Das, H.S. Rosenkranz, D.R. Bickers and H.Mukhtar: Nitropyrenes are potent inducers of cutaneous and hepatic monooxygenases. Biochem. Biophys. Res. Commun. 129,134-140 (1985). **[IF: 3.16]**

29. Mukul Das, P.K. Seth and H. Mukhtar: Distribution of benzo (a)pyrene in discrete regions of rat brain. Bull. Environ. Contam. Toxicol. 35, 500-504(1985). **[IF: 1.139]**

30. P. Asokan, Mukul Das, R. Dixit and H. Mukhtar: Interaction of cadmium, copper, zinc and selenium with aryl hyrocarbon hydroxylase of rat lung microsomes. Acta Pharmacol.Toxicol. 57, 72-77 (1985). **[IF: 1.335]**

31. Mukul Das, D.R. Bickers and H. Mukhtar: Effect of ellagic acid on hepatic and pulmonary xenobiotic metabolism in mice: Studies on the mechanism of its anticarcinogenic action. Carcinogenesis 6, 1409-1413 (1985). **[IF: 5.702]**

32. Mukul Das, E. Greenspan, H. Mukhtar and D.R. Bickers: Photoenhancement of lipid peroxidation associated with the generation of reactive oxygen species in hepatic microsomes of hematoporphyrin derivative treated rats. Cancer Res. 45, 6328- 6330 (1985). **[IF: 8.61]**

33. Mukul Das and H. Mukhtar: Immunotherapy: A new hope for cancer treatment. Science Reporter 23, 220-225 (1985).

34. Y.C. Awasthi, S.V. Singh, Mukul Das and H. Mukhtar: Comparative studies on the activities of lung glutathione S-transferase isozymes towards the metabolites of benzo(a)pyrene. Biochem. Biophys. Res. Commun. 133, 863- 867 (1985). **[IF: 3.16]**

35. Mukul Das, D.R. Bickers and H. Mukhtar: Inhibition by clotrimazole on epidermal polycyclic aromatic hydrocarbon (PAH) metabolism and carcinogenicity in Balb/c mice. *In: Polynuclear Aromatic Hydrocarbons. (M. Cooke, A.J. Dennis and G.L. Fisher eds). Battelle Press, Columbus, Ohio*, 1986, pp 215-227.

36. H. Mukhtar, Mukul Das and D.R. Bickers: Inhibition of 3-methylcholanthrene-induced skin tumorigenicity in Balb/c mice by chronic oral feeding of trace amounts of ellagic acid in drinking water. Cancer Res. 46, 2262-2265 (1986). **[IF: 8.61]**

37. Mukul Das, H. Mukhtar, B.J. DelTito, C.L. Marcelo and D.R. Bickers: Clotrimazole as an inhibitor of benzo(a)pyrene metabolism and its subsequent glucuronidation, sulfation and macromolecular binding in Balb/c mouse keratinocytes. J. Invest. Dermatol. 87, 4-10 (1986). **[IF: 6.314]**

38. R. Dixit, Mukul Das, P.K. Seth and H. Mukhtar: Interaction of acrylamide with bovine serum albumin. Environ. Res. 40, 365-371 (1986). **[IF: 3.5]**

39. D.R. Bickers, Mukul Das and H. Mukhtar: Pharmacological modification of epidermal detoxification systems. British. J. Dermatol. 115, 9-16 (1986). **[IF: 4.351]**

40. C.E. Modly, Mukul Das, P.S.C. Don, C.L. Marcelo, H. Mukhtar and D.R. Bickers: Capasicin as an in vitro inhibitor of benzo(a)pyrene metabolism and its DNA binding in human and murine keratinocytes. Drug Metab. Disp. 14, 413-416 (1986). **[IF: 3.913]**

41. H. Mukhtar, Mukul Das and D.R. Bickers: Skin tumor initiating activity of therapeutic crude coal tar as compared to other polycyclic aromatic hydrocarbons in SENCAR mice. Cancer Lett. 31, 147 - 151 (1986). **[IF: 4.864]**

42. H. Mukhtar, B.J. DelTito, P.M. Matgouranis, Mukul Das, P. Asokan and D.R. Bickers: Additive effects of ultraviolet B and crude coal tar on cutaneous carcinogen metabolism. Possible relevance to the tumorigenicity of Goeckerman Regimen J. Invest. Dermatol. 87, 348-353 (1986). **[IF: 6.314]**

43. Mukul Das, P. Asokan, P.C. Don, G.G. Krueger, D.R. Bickers and H. Mukhtar: Carcinogen metabolism in human skin grafted onto athymic nude mice: A model for study of human skin carcinogenesis. Biochem. Biophys. Res. Commun. 138, 33-39 (1986). **[IF: 3.16]**

44. P. Asokan, Mukul Das, D.P. Bik, P.C. Howard, G.D. McCoy, H.S. Rozenkranz, D.R. Bickers and H. Mukhtar: Comparative effects of topically applied nitrated arenes and their non- nitrated parent arenes on cutaneous and hepatic drug and carcinogen metabolism in neonatal rats.Toxicol. Applied Pharmacol. 86, 33-43 (1986). **[IF: 4.722]**

45. Mukul Das, D.R. Bickers and H. Mukhtar: Epidermis: The major site of cutaneous benzo(a)pyrene and benzo(a)pyrene 7,8-diol metabolism in neonatal Balb/c mice. Drug Metab. Disp. 14, 637-642 (1986). **[IF: 3.913]**

46. Mukul Das, S.V. Singh, H. Mukhtar and Y.C. Awasthi: Differential inhibition of rat and human glutathione-S-tranferase isozymes by plant phenols. Biochem. Biophys. Res. Commun.141, 1170- 1176 (1986). **[IF: 3.16]**

47. H. Mukhtar, P. Asokan, Mukul Das, R.M. Santella and D.R, Bickers: Inhibition of benzo(a)pyrene diol epoxide-DNA adduct formation in skin and lung of SENCAR mice by topical application of crude coal tar. Cancer Lett. 33, 287-294 (1986). **[IF: 4.864]**

48. H.F. Merk, H. Mukhtar, I. Kaufmann, Mukul Das and D.R. Bickers: Human hair follicle benzo(a)pyrene and benzo(a)pyrene 7,8-diol metabolism: Effect of exposure to a coal tar containing shampoo, J. Invest. Dermatol. 88, 71-76 (1987). **[IF: 6.314]**

49. Mukul Das, H. Mukhtar, D.P. Bik and D.R. Bickers: Inhibition of epidermal xenobiotic metabolism in SENCAR mice by naturally occurring plant phenols. Cancer Res. 47, 760 - 766 (1987). **[IF: 8.61]**

50. Mukul Das, W.A. Khan, P. Asokan, D.R. Bickers and H. Mukhtar: Inhibition of polyaromatic hydrocarbon-DNA adduct formation by naturally occurring plant phenols in epidermis and lungs of SENCAR mice. Cancer Res. 47, 767-773 (1987). **[IF: 8.61]**

51. S.V. Singh, G. Creadon, Mukul Das, H. Mukhtar and Y.C. Awasthi: t-Butylated hydroxyanisole preferentially induces glutathione-S-transferase isozymes of mouse lung which selectively bind benzo(a)pyrene metabolites. Biochem. J. 243, 351-358 (1987). **[IF: 5.155]**

52. R. Husain, R. Dixit, Mukul Das and P.K. Seth: Neurotoxicity of acrylamide in developing rat brain: Changes in the levels of brain biogenic amines and activities of monoamine oxidase and acetylcholine esterase. Industrial Hlth. 25, 19-28 (1987). **[IF: 1.215]**

53. W.A. Khan, Mukul Das, S. Stick, S. Javed, D.R. Bickers and H. Mukhtar: Induction of cutaneous NAD(P)H: quinone reductase by crude coal tar and polycyclic aromatic hydrocarbons. Biochem. Biophys. Res. Commun. 146, 126-133 (1987). **[IF: 3.16]**

54. H.F. Merk, H. Mukhtar, B. Schutte, I. Kaufman, Mukul Das and D.R. Bickers: 7-Ethoxyresorufin-O-deethylase activity in human hair roots: A Potential marker for toxifying species of cytochrome P-450 isozymes. Biochem. Res. Biophys. Res. Commun. 148, 755-761 (1987). **[IF: 3.16]**

55. Z.Y. Wang, Mukul Das, D. R. Bickers and H. Mukhtar: Interaction of epicatechins derived from green tea with rat hepatic cytochrome P-450. Drug Metab. Disp. 16, 98 - 103 (1988). **[IF: 3.913]**

56. Mukul Das, P. Asokan, D.P. Bik, D.R. Bickers and H. Mukhtar: Inhibition of benzo(a)pyrene DNA adduct formation by naturally occurring plant phenols in epidermis of SENCAR mice *In : Polynuclear Aromatic Hydrocarbons (M.Cooke, A.J. Dennis and G.L. Fisher eds). Battelle Press, Columbus, Ohio,* 1988, pp 155-167.

57. H. Mukhtar, P. Asokan, Mukul Das, P.C. Howard, G.D. Mc Coy, H.S.Rosenkranz and D.R. Bickers: Nitroarenes as inducers of cutaneous and hepatic monooxygenases in neonatal rats. Comparison with the parent arenes. *In: Polynuclear Aromatic Hydrocarbon (M. Cooke, A.J. Dennis and G.L. Fisher eds) Battelle Press, Columbus*, Ohio,1988, pp 581 - 594.

58. Mukul Das and P.K. Ray: Lipid antioxidant properties of quercetin in vitro, Biochem. Int. 17, 203-209 (1988). **[IF: 0.83]**

59. H. Mukhtar, Mukul Das, W.A. Khan, Z.Y. Wang, D.P. Bik and D.R. Bickers: Exceptional activity of tannic acid among naturally occurring plant phenols in protecting against 7,12-dimethyl-benz(a)anthracene, benzo(a)pyrene, 3-methyl-cholanthrene and N-methyl-N-nitrosourea induced skin tumorigenesis in mice. Cancer Res. 48, 2361 - 2365 (1988). **[IF: 8.61]**

60. K.K. Upreti, Mukul Das and S.K. Khanna: Biochemical toxicology of argemone alkaloids: III. Effect on lipid peroxidation in different subcellular membranes of liver. Toxicology Letters 42, 301- 308 (1988). **[IF: 3.581]**

61. H. Mukhtar, W.A. Khan, D.P. Bik, Mukul Das and D.R. Bickers: Hepatic microsomal metabolism of leukotriene B4 in rats: Biochemical characterization, effect of inducers, and age-and sex dependent differences. Xenobiotica 19, 151-159 (1989). **[IF: 2.799]**

62. P.S.C. Don, H. Mukhtar, Mukul Das, N.A. Berger and D.R. Bickers: Benzo(a)pyrene metabolism, DNA-binding and UV- induced DNA damage in cultered fibroblasts from a patient with unilateral multiple basal cell carcinoma. British J Dermatol. 120, 161 - 171 (1989). **[IF: 4.351]**

63. Mukul Das, D.R. Bickers and H. Mukhtar: Protection against chemically induced skin tumorigenesis in SENCAR mice by tannic acid. International J Cancer 42, 468- 470 (1989). **[IF: 6.198]**

64. Mukul Das, K. Garg, G.B. Singh and S.K. Khanna: Benzanthrone: A new substrate for hepatic microsomal cytochrome P-450. Biochem. Int. 18, 1237- 1244 (1989). **[IF: 0.83]**

65. A. Dhawan, D. Parmar, Mukul Das and P.K. Seth: Characterization of cerebral 7-ethoxycoumarin-O-deethylase: Evidence for multiplicity of cytochrome P-450 in brain. Biochem. Med. Metab. Biol. 41, 184-192 (1989). **[IF: 0.83]**

66. K.K. Upreti, Mukul Das, A. Kumar, G.B. Singh and S.K. Khanna: Biochemical toxicology of argemone oil: IV. Short- term oral feeding response in rats. Toxicology 58, 285-298 (1989). **[IF: 4.017]**

67. P. Tewari, Mukul Das and S.K. Khanna: N-phenyldiamine uptake onto re-constituted collagen fibrils: Toxicol. In Vitro 3, 323-327 (1989). **[IF: 2.775]**

68. A.K. Srivastava, Mukul Das and S.K. Khanna: An outbreak of tricresyl phosphate poisoning in Calcutta, India. Food & Chem. Toxicol. 28, 303 - 304 (1990). **[IF: 3.01]**

69. G.B. Singh, S.K. Khanna and Mukul Das: Recent studies on toxicity of benzanthrone. J. Scientific & Industrial Res. 49, 288- 296 (1990). **[IF: 0. 587]**

70. P.K. Seth, A. Dhawan, D. Parmar and Mukul Das: Cyutochrome P.450 catalyzed reactions in brain. *In: Biol. Oxidation Systems Vol. 1 (ed C.C. Reddy, G.A. Hamilton & K.M. Madyastha) Academic Press, New York*, 133-146 (1990).

71. A. Dhawan, D. Parmar, Mukul Das and P.K. Seth: Cytochrome P.450 dependent monooxygenases in neuronal and glial cells: Inducibility and specificity. Biochem. Biophys. Res. Commun. 170, 441- 447 (1990). **[IF: 3.16]**

72. Mukul Das, K.K. Upreti and S.K. Khanna: Biochemical toxicology of argemone oil. II: Role of reactive oxygen species in iron catalysed lipid peroxidation. Bull. Environ. Contam. Toxicol. 46, 422 - 430 (1991). **[IF: 1.139]**

73. K.K. Upreti, Mukul Das and S.K. Khanna: Biochemical toxicology of argemone oil. I: Effect on hepatic cytochrome P-450 and xenobiotic metabolizing enzymes. J. Appl. Toxicol. 11, 203 - 209 (1991). **[IF: 2.597]**

74. Mukul Das, K. Garg, A.Joshi, G.B.Singh and S. K.Khanna: Interaction of benzanthrone with cytochrome P-450: Altered patterns of hepatic xenobiotic metabolism in rats. J. Biochem.Toxicol. 6, 37 -44 (1991). **[IF: 1.96]**

75. K.K. Upreti, Mukul Das and S.K. Khanna: Role of antioxidants and scavengers on argemone oil induced toxicity in rats. Arch.Environ. Contam. Toxicol. 20, 531- 537 (1991). **[IF: 2.012]**

76. W.A. Khan, Z.Y. Wang, Mukul Das, M. Athar, D.R. Bickers and H. Mukhtar: Latency of polycyclic aromatic hydrocarbons- induced skin tumorigenesis by tannic acid: Mechanistic study. *In: Polynuclear Aromatic Hydrocarbons Measurements, Means and Metabolism, (ed. M. Cooke, K. Loening and J, Merritt) Battle Press, Columbus, Ohio*, 481 - 494 (1991).

77. Mukul Das, K. Garg, G.B. Singh and S.K. Khanna: Bio-elimination and organ retention of benzanthrone in scorbutic and non-scorbutic guinea pigs. Biohem. Biophys. Res. Commun. 178, 1405-1412 (1991). **[IF: 3.16]**

78. S.K. Khanna and Mukul Das: Toxicity, carcinogenic and clinico-epidemiological studies on dyes and dye- intermediates. J. Sci. Indust. Res. 50, 965 - 974 (1991). **[IF: 0.587]**

79. S. Ramchandani, Mukul Das and S.K. Khanna: Lipid peroxidation of ultrastructural components of rat liver induced by Metanil yellow and orange II: Comparison with Blend. Toxicol. and Indus. Hlth. 8, 63-76 (1992). **[IF: 1.55]**

80. S.K. Khanna and Mukul Das: Safety and risk impact of intentionally added non-prescribed chemical additives in foodstuffs: Indian Standards 6, 43-47 (1992).

81. K. Garg, S.K. Khanna, Mukul Das and G.B. Singh: Comparartive study of bio-disposition profile of benzanthrone in different rodent species. Food & Chem.Toxicol. 30, 517 - 520 (1992). **[IF: 3.01]**

82. A.K. Srivastava, Mukul Das and S.K. Khanna: An investigation of factors affecting recovery in victims of tricresyl phosphate induced polyneuorpathy: An 18 months followup study. Int. J. Toxicol. Occup. Environ. Hlth. 1, 41- 45 (1992).

83. A. Dhawan, D. Parmar, Mukul Das and P.K. Seth: Characterization of ethoxyresorufin-O-deethylase in rat brain: A selective marker of cytochrome P-450 isozyme. Int. J. Toxicol. Occup. Environ. Hlth 1, 88-93 (1992).

84. Mukul Das and S. K. Khanna: A case for need to restrict maximum detectable limits of Nickel residues in hydrogenated vegetable oils. Int. J. Toxicol. Occup. Environ. Hlth 1, 94-96 (1992).

85. R. Khanna, S.K. Khanna and Mukul Das: Scope, development and safety evaluation needs for natural pigments as viable partners to synthetic dyes. Int. Newslett. for Natural Dyes II. 81-91 (1992).

86. K. Garg, S.K. Khanna, Mukul Das and G.B., Singh: Role of extrtaneous supplementation of ascorbic acid on the bio-disposition profile of benzanthrone in guinea pigs. Food & Chem. Toxicol. 30, 967- 971 (1992). **[IF: 3.01]**

87. A. Kumar, F. Husain, Mukul Das and S.K. Khanna: An outbreak of Epidemic dropsy in the Barabanki district of Uttar Pradesh: A limited trial for scope of bio-antioxidants in the management of symptoms. Biomedical & Environment.Sciences 5, 251-256 (1992). **[IF: 1.345]**

88. S. Tandon, Mukul Das and S.K. Khanna: Biometabolic elimination and organ retention profile of argemone alkaloid, sanguinarine, in rats and guinea pigs. Drug. Metab. Disp. 20, 194- 197 (1993). **[IF: 3.913]**

89. S. Tandon, Mukul Das and S.K. Khanna: Effect of sanguinarine on the transport of essential nutrients in an everted gut sac model: Role of Na^+ K^+-ATPase. Natural Toxins 1, 235 - 240 (1993). **[IF: 0.62]**

90. N. Dwivedi, Mukul Das, A. Joshi, G.B. Singh and S.K. Khanna: Modulation by ascorbic acid of cutaneous and hepatic biochemical effects induced by topically applied benzanthrone in mice. Food & Chem. Toxicol. 31, 503-508 (1993). **[IF: 3.01]**

91. S.K. Khanna and Mukul Das: The impact of environmental pollutants, contaminants and adulterants in efforts ensuring food safety. In: Training Course on Risk Assessment and Management, ITRC, Lucknow, June 1993, pp 1-12.

92. S. Singh, Mukul Das and S.K. Khanna: Bio-metabolism of Green S and Indigocarmine through caecal microflora of rats. Biochem. Biophys. Res. Commun. 195, 490 - 496 (1993). **[IF: 3.16]**

93. Mukul Das,. K. Garg, G.B. Singh and S.K. Khanna: Attenuation of benzanthrone toxicity of ascorbic acid in guinea pigs. Fund. Appl. Toxicol. 22, 447 - 456 (1994). **[IF: 5.093]**

94. S. Ramcahandani, Mukul Das and S.K. Khanna: Effect of Metanil yellow, Orange II and their blend on hepatic xenobiotic metabolizing enzymes in rats. Food & Chem. Toxicol. 32, 559- 563 (1994). **[IF: 3.01]**

95. S. Singh, Mukul Das and S.K. Khanna: Caecum microfloral bio-transformation of Malachite green and Rhodamine B in rats. Biochem. Biophys. Res. Commun. 200, 1544- 1550 (1994). **[IF: 3.16]**

96. R.P. Rastogi, G. Srinivas and Mukul Das: Oscillatory oxidation in enzyme reactions. Indian J. Chem. 33A, 750 - 753 (1994). **[IF: 0.92]**

97. A. Joshi, N. Dwivedi, Mukul Das, G.B. Singh and S.K. Khanna: Organelle specific site of hepato-toxic potential of benzanthrone in rats. Tox. Subs. J. 14, 67 - 77 (1995). **[IF: 0.31]**

98. S. Singh, Mukul Das and S.K. Khanna: Bio-metabolic disposition of Metanil yellow, Orange II and their blend by caecal microflora of rats. Indian J. Exptl. Biol. 33, 543-544 (1995). **[IF: 1.295]**

99. Mukul Das: Analytical; methodology in detection of colours in food commodites. *In: A mannual of ICMR Training Programme on Analysis of Food Contaminants and Adulterants: Food Colours, at ITRC*, Lucknow from Feb 8-16, 1995, pp 28- 32.

100. Mukul Das and S.K. Khanna: Analysis of colours in foodstuffs. *In: A mannual of ICMR Training Programme on Analysis of Food Contaminants and Adulterants: Food Colours, at ITRC, Lucknow* from Feb 8-16, 1995, pp 66-79.

101. S. Dixit, R.C.Pandey, Mukul Das and S.K. Khanna: Food quality surveillance on colours in eatables sold in rural markets of Uttar Pradesh. J. Food Sci Technol. 32, 373-376 (1995) [**IF: 1.123]**

102. S.K. Khanna and Mukul Das: CD Strip. Vish Vigan Sandesh 1, 19 (1995).

103. S. Ramchandani, Mukul Das, A. Joshi and S.K. Khanna: Effect of oral and parenteral administration of Metanil yellow on some hepatic and intestinal biochemical parameters. J. Applied Toxicol.17, 85-91 (1997). **[IF: 2.597]**

104. A.Kannan, Mukul Das and S.K. Khanna, Estimation of menthol in Pan Masala samples by spectrophotometric method. Food Additives & Contaminants14, 367-371 (1997). **[IF: 2.230]**

105. Mukul Das and S.K. Khanna, Clinico-epidemiological, toxicological and safety evaluation studies on argemone oil. CRC Crit. Rev. Toxicology 27, 273-297 (1997). **[IF: 7.204]**

106. Mukul Das, S. Ramchandani, R.K. Upreti and S.K. Khanna, Metanil yellow, a bifunctional inducer of hepatic phase I and phase II xenobiotic metabolizing enzymes. Food & Chem. Toxicol. 35, 835-838 (1997). **[IF: 3.01]**

107. S. Singh, Mukul Das and S.K. Khanna: Reductive and hydrolytic activities of food colours by enteric bacteria. Indian J. Exptl. Biol. 35, 912-914 (1997). **[IF: 1.295]**

108. S. Singh, Mukul Das and S.K. Khanna, Comparative azo reductase activity of red azo dyes through caecal and hepatic microsomal fraction in rats. Indian J. Exptl. Biol. 35, 1016-1018 (1997). **[IF: 1.295]**

109. S. Singh, Mukul Das and S.K. Khanna, Azo reductase activity of microbial population from different segments of gastrointestinal tract of various animal species. Indian J. Exptl. Biol. 36, 99-103 (1998). **[IF: 1.295]**

110. P.D. Dwivedi, Mukul Das and S.K. Khanna, Metabolic role of cytochrome P-450 on quinalphos toxicity: Effect on hepatic and brain xenobiotic metabolizing and antioxidant enzymes in rats. Food & Chem. Toxicol. 36, 437-444 (1998). **[IF: 3.01]**

111. Mukul Das and S.K. Khanna: Epidemic Dropsy. The National Medical Journal of India 11, 207-208 (1998). **[IF: 1.0]**

112. S. Singh, Mukul Das and S.K. Khanna: Microbial hydrolytic activity in different segments of gastro-intestinal tract of various species. Environment Bulletin 15, 49-55 (1999).

113. R.P. Singh, Mukul Das, R. Khanna and S.K. Khanna. Evaluation of dermal irritancy potential of benzanthrone derived dye analogs: Structure acitivity relationship. Skin Pharmacol Appl. Skin Physiol. 13, 165-173 (2000). **[IF: 2.92]**

114. R.P. Rastogi, M.M. Husain, P. Chand and Mukul Das: B.Z. Oscillator with fructose and tartaric acid as organic substrates. Indian J. Chem. A 39, 679-684 (2000). **[IF: 0.92]**

115. Mukul Das, S. Dixit and P.D. Dwivedi: Analysis of commonly encountered food adulterants and contaminants. *Proc. of Training Workshop on Monitoring and Analysis of Toxic Chemicals and Biological Toxins in Food and Water* at ITRC, Lucknow from 15-20, May, 2000 (ed. S.M.E. Wint) pp 150-152.

116. P.D. Dwivedi and Mukul Das: Surveillance and analysis of aflatoxin in food. *Proc. of Training Workshop on Monitoring and Analysis of Toxic Chemicals and Biological Toxins in Food and Water* at ITRC, Lucknow from 15-20, May, 2000, (ed. S.M.E. Wint) pp 56-61.

117. Mukul Das and S.K. Khanna: Quality assessment studies on edible oils. *In: Rapeseed Mustard at the Doorstep of the New Millennium (eds Bhatnagar, A.K, Shukla, R.K and Singh, H.B) MRPC, New Delhi* (2000), 132-136.

118. Mukul Das and S.K. Khanna: Sankramak Jalodar (Dropsy) Vish Vigyan Sandesh 6, 15-16 (2000).

119. N. Dwivedi, Mukul Das and S.K. Khanna: Role of biological antioxidants in benzanthrone toxicity. Archives of Toxicology 75, 221-226 (2001). **[IF: 5.215]**

120. A Kannan, Mukul Das and S.K. Khanna: Analysis of menthol content in Pan Masala samples collected from State of Uttar Pradesh. J. Food Science & Technol. 38, 342-345 (2001). **[IF: 1.123]**

121. S. Rastogi, Mukul Das and S.K. Khanna: Quantitative detection of aflatoxin B1-oxime by column liquid chromatography with UV detection. J. Chromatography A 933, 91-97 (2001). **[IF: 4.531]**

122. Mukul Das and S.K. Khanna: Management of epidemic dropsy caused by argemone oil. *In: Health and Dietary Aspects of Mustard Oil, (eds. Bhatnagar, A.K., Singh, H.B and Prakash S), MRPC, New Delhi*, (2001) 139-149.

123. I. Mukhopadhyay, A. Nasir, K. Mahmood, D. K. Saxena, Mukul Das, S.K. Khanna and D.K. Chawdhuri: Toxicity of argemone oil: Effect on hsp 70 expression and tissue damage in transgenic Drosophila melanogaster (hsp 70- lac Z) Bg^9. Cell Biology & Toxicol.18, 1-11 (2002). **[IF: 2.511]**

124. S. Rastogi, Mukul Das and S. Khanna, A novel approach to study the kinetics of electron donor, substrate and product independently and simultaneously for pentoxyresorufin-O-deethylase activity. FEBS Lett. 512, 121-124 (2002). **[IF: 3.843]**

125. R.P. Rastogi, M.M. Husain, P. Chand, G. Misra and Mukul Das: Anomalous control mechanism in a B-Z type oscillator involving only fructose as organic substrate. Chem. Phys. Lett. 353, 40-48 (2002). **[IF: 2.462]**

126. M. Tripathi, R. Khanna and Mukul Das: Food colours and food processing industry: Guidelines and concerns. *In: National Seminar on Development of Food Processing Industries in U.P*, Lucknow, January 16-17, 2002, pp 174-182.

127. R.N. Khanna, Mukul Das and Mohni Anand: Influence of phenobarbital and carbon tetrachloride on the modulation of tissue retention profile of HCH in rats. Biomedical & Environ. Sciences 15, 119-129 (2002). **[IF: 1.345]**

128. R.P. Singh, R. Khanna, S.K. Khanna and Mukul Das: A sensitive method of monitoring exposure to 3-bromobenzanthrone in industrial dyestuff workers. Toxicol. Mechanisms and Methods 12, 229-237 (2002). **[IF: 1.367]**

129. S. Rastogi , S.K. Khanna and Mukul Das: A spectrophotometric method to monitor the catalytic activity of microsomal cytochrome P-450 IIB 1/2: Comparison with fluorometric assay. Indian J. Biochem Biophys. 39, 191-196 (2002). **[IF: 1.142]**

130. R.P. Singh, Mukul Das, Raj Khanna and S.K. Khanna. Effect of topical application of 3-bromobenzanthrone on hepatic lipid peroxidation and bio-antioxidants: comparison with benzanthrone Indian J. Toxicology 9, 107-111 (2002). **[IF: 0.601]**

131. A. Amba, K. Seth, M. Ali, Mukul Das, A.K. Agarwal, S.K. Khanna and P.K. Seth Comparative effect of dietary administration of Lathyrus sativus pulse on behaviour, neurotransmitter receptors and membrane permeability in rat and guinea pigs. J. Appl. Toxicol, 22, 415-421 (2002). **[IF: 2.597]**

132. A. Amba, M. Kumar, R.K. Upreti, S.K. Khanna and Mukul Das: Effect of dietary administration of Lathyrus sativus pulse on intestinal biochemical parameters in normal and scorbutic guinea pigs. Biomed.Env. Sci., 15, 315-322 (2002). **[IF: 1.345]**

133. M. Pandey and Mukul Das: Khadya telo mai polycyclic aromatic hydrocarbon Bhartiya peripechya mai. Vish Vigyan Sandesh 8, 19-20 (2002).

134. R. P. Singh , R. Khanna , J. L. Kaw, S. K. Khanna and Mukul Das, Comparative effect of benzanthrone and 3-bromobenzanthrone on hepatic xenobiolic metabolism and anti-oxidative defense system in guinea pigs. Archives of Toxicology 77, 94-99 (2003). **[IF: 5.215]**

135. P. D. Dwivedi, Mukul Das and S. K. Khanna: Detection methods for aflatoxin M_1 contamination in milk and milk products*. In: Safe milk & milk products: A step towards quality control to enhance organic milk, PCDF Workshop Proceedings, Lucknow,* Oct 21-22 (2003) pp 77-85.

136. M. Kumar, A. Kannan, R.K. Upreti, G.Mishra, S.K. Khanna and Mukul Das: Interaction of *Lathyrus sativus* and manganese on guinea pig intestine. Toxicol. Mech & Methods 13, 295-300 (2003). **[IF: 1.367]**

137. S. Rastogi, P.D. Dwivedi, S. K. Khanna and Mukul Das: Detection of Aflatoxin M1 contamination in milk and infant milk products from Indian markets by ELISA. Food Control 15, 287-290 (2004). **[IF: 2.812]**

138. S. Dixit and Mukul Das: Colourful Holi: Use of natural versus synthetic colours. ENVIS Newsletter 11, No. 3, 9-11 (2004).

139. M. Tripathi, S. K. Khanna and Mukul Das: A novel method for the quantitative analysis of synthetic colours in ice cream samples. Journal of Assoc. of Analyt. Chemist Intl. 87, 657-663 (2004). **[IF: 1.55]**

140. K. M. Ansari, L.K.S. Chauhan, A. Dhawan, S. K. Khanna and Mukul Das. Unequivocal evidence for genotoxic potential of argemone oil in mice. Intl J. Cancer 112, 890-895 (2004). **[IF: 6.198]**

141. Mukul Das, S. Rastogi and S. K. Khanna: Mechanism to study 1:1 stoichiometry of NADPH and alkoxyphenoxazones metabolism spectrophotometrically in subcellular biological preparations. Biochem Biophys. Acta 1675, 1-11 (2004). **[IF: 5.0]**

142. P. D. Dwivedi, Mukul Das and S. K. Khanna: Need for upgrading food quality monitoring capacities in the new globalized market scenario. Current Science 87, 729-730 (2004). **[IF: 0.935]**

143. R.P. Singh, R. Khanna, S.K. Khanna and Mukul Das: Bio-elimination of conjugated metabolites of 3-bromobenzanthrone in urine of rats and guinea pigs. Toxicol. Mech. Methods 14, 345-354 (2004). **[IF: 1.367]**

144. S. Dixit and Mukul Das: Holi ke rang- Prakaratik avom kratyim. Vish Vigyan Sandesh 10, 33-34 (2004) .

145. R.P. Singh, R. Khanna, S.K. Khanna and Mukul Das,: Enchancement of urinary elimination of 3-bromobenzanthrone metabolites by oral supplementation of ascorbic acid in guinea pigs. Biomed. Environ Sciences 17, 390-396 (2004). **[IF: 1.345]**

146. M. K. Pandey, K. K. Mishra, S. K. Khanna and Mukul Das: Detection of polycyclic aromatic hydrocarbons in commonly consumed edible oils and their likely intake in Indian population. J. Am. Oil Chem. Soc. 81, 1131-1136 (2004). **[IF: 1.81]**

147. K. M. Ansari, A. Dhawan, S. K. Khanna and Mukul Das: In vivo DNA damaging potential of sanguinarine alkaloid, isolated from argemone oil using alkaline comet assay. Food & Chem Toxicol 43, 147-153 (2005). **[IF: 3.01]**

148. Mukul Das, K. Babu, N. Reddy and L. M. Srivastava: Oxidative damage of plasma proteins and lipids in Epidemic Dropsy patients: Alterations in antioxidant status. Biochem. Biophys Acta 1722, 209-217 (2005). **[IF: 5.0]**

149. R. P. Rastogi, P. Chand, M. K. Pandey and Mukul Das: Dual control mechanisms in B-Z oscillators with glucose and oxalic acid as double substrate. J. Phys. Chem. A 109, 4562- 4567 (2005). **[IF: 4.189]**

150. Mukul Das, S. Dixit and S. K. Khanna: A study justifying the need to prescribe limits for toxic metal contaminants in food grade silver foils. Food Addit & Contaminants 22, 1219-1223 (2005). **[IF: 2.230]**

151. Mukul Das, K. M. Ansari, A. Dhawan, Y. Shukla and S. K. Khanna: Correlation of DNA damage in Epidemic Dropsy patients to carcinogenic potential of argemone oil and isolated sanguinarine alkaloid in mice. Intl. J. Cancer 177, 709-717, (2005). **[IF: 6.198]**

152. Mukul Das and S.K. Khanna: Scope for formulating quality standards of food grade silver foil. Current Science 89, 1307 (2005). **[IF: 0.935]**

153. M. K. Pandey, A. B. Pant and Mukul Das: In vitro cytotoxicity of polycyclic aromatic hydrocarbon residues arising through repeated fish fried oil in human hepatoma Hep G2 cell lin. Toxicol In vitro 20, 308-316 (2006). **[IF: 2.775]**

154. S. Rastogi, R.K.S. Dogra, S.K. Khanna and Mukul Das: Skin tumorigenic potential of aflatoxin B1 in mice. Food Chem.Toxicol. 44, 670-677 (2006). **[IF: 3.01]**

155. M. K. Pandey, S.Yadav, D.Parmar and Mukul Das: Induction of hepatic cytochrome P450 isozymes, benzo(a)pyrene metabolism and DNA binding following exposure to polycyclic aromatic hydrocarbon residues generated during repeated fish fried oil in rats. Toxicol & Appl Phrmacol. 213, 126-134 (2006). **[IF: 4.722]**

156. K. Babu, S. K. Khanna and Mukul Das: Safety evaluation studies on argemone oil through dietary exposure for 90 days in rats. Food & Chem.Toxicol. 44, 1151-1157 (2006). **[IF: 3.01]**

157. K.M. Ansari, A. Dhawan, S.K. Khanna and Mukul Das: Protective effect of bioantioxidants on argemone oil/sanguinarine alkaloid induced genotoxicity in mice. Cancer Lett. 244, 109-118 (2006). **[IF: 4.864]**

158. Mukul Das:Common adulterants and food safety status in India.Toxicol. Lett.164s, S58 (2006). **[IF: 3.581]**

159. M.K. Pandey, A. Dhawan and Mukul Das: Induction of p53, p21 WAF1, ornithine decarboxylase activity and DNA Damage leading to cell cycle arrest and apoptosis following topical application of repeated fish fried oil extract to mice. Molecular Carcinogenesis 45, 805-813 (2006). **[IF: 4.269]**

160. M.K. Pandey and Mukul Das: Assessment of carcinogenic potential of repeated fish fried oil in mice. Molecular Carcinogenesis 45, 741-751 (2006). **[IF: 4.269]**

161. M.Tripathi, S.K. Khanna and Mukul Das: Usage of saccharine in food products and its intake in the population of Lucknow, India. Food Addit Contam. 23, 1265-1275 (2006). **[IF: 2.230]**

162. M.Tripathi, S.K. Khanna and Mukul Das: Surveillance on use of synthetic colours in eatables vis as vis Prevention of Food Adulteration Act of India. Food Control 18, 211-219 (2007). **[IF: 2.812]**

163. K. Babu, S.K. Khanna and Mukul Das: Adulteration of mustard cooking oil with argemone oil: Do Indian food regulatory policies and antioxidant therapy both need revisitation. Antioxidant Redox Signalling 9, 515-525 (2007). **[IF: 8.456]**

164. S. Rastogi, Y. Shukla, B. N. Paul, D. K. Chaudhury, S.K. Khanna and Mukul Das: Studies on mechanism of protective effect of Ocimum sanctum on 3-methylcholantherene, 7,12-dimethyl-benzanthracene and aflatoxin B1 induced skin carcinogenesis in mice. Toxicol Appl Pharmacol. 224, 228-240 (2007). **[IF: 4.722]**

165. K.K. Mishra, S. Dixit, S.K. Purshottam, R.C. Pandey, Mukul Das and S.K. Khanna: Exposure assessment to Sudan dyes through consumption of artificially coloured chilli powders in India. Intl J Food Sci Technol. 42, 1363-1366 (2007). **[IF: 1.259]**

166. S. Dixit, K. K. Mishra, S. K. Khanna and Mukul Das: Benzoate and synthetic color risk assessment of fast food sauces served at street food joints of Lucknow, India. American J Food Technol.3, 183-191 (2008). **[IF: 0.89].**

167. S. Dixit, S. K. Khanna and Mukul Das: Non-uniform implementation of ban on Lathyrus cultivation in Indian states leading to unwarranted exposure of consumers. Current Science 94, 570-572 (2008). **[IF: 0.935]. Cited on Cover page**

168. K. Babu, S. K. Khanna and Mukul Das: Antioxidant status of erythrocytes and their response to oxidative challenge in humans with argemone oil poisoning. Toxicol Applied Pharmacol 230, 304-311 (2008). **[IF: 4.722]**

169. K. Babu, K. M. Ansari, S. Mehrotra, R. Khanna, S.K.Khanna and Mukul Das: Alterations in redox potential of glutathione/glutathione disulfide and cysteine/ cysteine disulfide couples in plasma of dropsy patients with argemone oil poisoning. Food Chem Toxicol 46, 2409-2414 (2008). **[IF: 3.01]**

170. S. Dixit, S. K. Khanna and Mukul Das: Desirability to prescribe quality specifications for aluminium foils used as food contact material. Toxicol. Intl. 15, 27-31 (2008).

171. A. Misra, R. Prasad, Mukul Das and P. D. Dwivedi: Prevalence of legume sensitization in patients of naso -bronchial allergy. Immunopharmacol Immunotoxicol. 30, 529-542 (2008). **[IF: 1.829]**

172. N. P. Reddy and Mukul Das: Interaction of sanguinarine alkaloid, isolated from argemone oil, with hepatic cytochrome P-450 in rats. Toxicol Mech Meth 18, 635-643 (2008). **[IF: 1.367]**

173. Mukul Das: Food contamination and adulteration. *In e-book Environmental Biochemistry, National Science Digital Library, National Institute of Science Communication & Information Resources, New Delhi* (2008) pp 1-32.

174. S. Dixit and Mukul Das: Chandi ke wark per vishalu tatwon ke manak nirdharan ki awashyakta. Vish Vigyan Sandesh 13, 60-64 (2008).

175. M. Devedi and Mukul Das: Oxytocin: Sharirik karyaki avom dushprabhav ki ashanka. Vish Vigyan Sandesh 13, 55-59 (2008).

176. N. Saxena, P.D. Dwivedi, K.M. Ansari and Mukul Das: Incidence of patulin in apple juices and its likely intake in Indian population. Food Additives & Contaminants Part B 1, 140-146 (2008). **[IF: 2.131]**

177. S. Dixit, S. K. Khanna and Mukul Das: A simple 2D HPTLC method for simultaneous quantification of curcumin, metanil yellow and sudan dyes in powdered turmeric, chilli and curry powders. J. Assoc of Analytical Chem Intl. 91, 1387-1396 (2008). **[IF: 1.55**].

178. N. Saxena, K.M. Ansari, R. Kumar, A. Dhawan, P.D. Dwivedi and Mukul Das: Patulin causes DNA damage leading to cell cycle arrest and apoptosis through modulation of Bax, P53 and P21/waf1 protiens in skin of mice. Toxicol Appl Pharmacol 234, 192-201 (2009). **[IF: 4.722] Cited on Cover page**

179. Mukul Das: Food contamination and adulteration: Safety paradigms. *In: Proceedigs of All India Seminar on "Safety & Toxicity in Food Products", Institutions of Engineers, Engineers Bhawan, New Delhi,* January 9-10, 2009, p 51-62.

180. Mukul Das, N. Saxena and P.D. Dwivedi: Emerging trends of nanoparticles application in food technology: Safety paradigms. Nanotoxicology 3, 10-18 (2009). **[IF: 5.758]**

181. P.D. Dwivedi, A. Misra, R. Shankar and Mukul Das: Are nanomaterials a threat to immune system? Nanotoxicology 3, 19-26 (2009). **[IF: 5.758]**

182. V. Sharma, R.K. Shukla, N. Saxena, D. Parmar, Mukul Das and A. Dhawan: DNA damaging potential of zinc oxide nanoparticles in human epidermal cells. Toxicology Letters 185, 211-218 (2009). **[IF: 3.581]**

183. V. Mishra, D.K. Saxena and Mukul Das: Effect of argemone oil and argemone alkaloid, sanguinarine on Sertoli-germ cell coculture. Toxicology Letters 186, 104-110 (2009). **[IF: 3.581]**

184. G. Mishra, R. Shukla, M. Hasan, S. K. Khanna and Mukul Das: Manganese co-exposure alters blood brain barrier permeability to facilitate Lathyrus sativus toxin entry into brain and potentiate toxicity. Toxicol Mech Meth 19, 318-326 (2009). **[IF: 1.367]**

185. A. Misra, R. Prasad, Mukul Das and P. D. Dwivedi: Probing novel allergenic proteins of commonly consumed Indian legumes. Immunopharmaol Immunotoxicol 31, 186-194 (2009). **[IF: 1.829]**

186. S. Dixit, S.K.Purshottam, S.K.Khanna and Mukul Das: Surveillance of quality of turmeric powders from city markets of India on the basis of curcumin content and presence of extraneous colours. Food Additives & Contaminants Part A 26, 1227-1231 (2009). **[IF: 2.230]**

187. N. P. Reddy and Mukul Das: Phenotype of hepatic xenobiotic metabolizing enzymes and CYP isoforms in sanguinarine treated rats: effect of P450 inducers on its toxicity. Toxicol Mech Meth 19, 510-517 (2009). **[IF: 1.367]**

188. M. Tripathi, S. Dixit, S.K. Khanna and Mukul Das: Intake pattern of synthetic colours by different age and socio-economic consumers groups of Lucknow, India. Int J Food Nutr & Public Health 3, 19-31 (2010).

189. S. Dixit, S.K.Khanna and Mukul Das: Usage pattern and exposure assessment of food colours in different groups of consumers in the State of Uttar Pradesh. Food Addit Contaminants Part A 27, 181-189 (2010). **[IF: 2.230]**

190. K. M. Ansari and Mukul Das: Tumor promotional activity of argemone oil and isolated sanguinarine alkaloid in mice: Evidence for higher expression of ODC and COX2 along with involvement of MAPK pathway. Food Chem Toxicol 48, 132-138 (2010). **[IF: 3.01]**

191. K. Babu, K.M. Ansari, S. Patel, M. Dikshit, S. Mehrotra and Mukul Das: Activation of inflammatory response and apoptosis of polymorphonulear leukocytes in patients with argemone poisoning. Chem Biol Interact 183, 154-164 (2010). **[IF: 3.10]**

192. S. Dixit, S. K. Khanna and Mukul Das: Simultaneous determination of eight synthetic permitted and five commonly encountered non-permitted food colors in various food matrices by reversed-phase high-performance liquid chromatography. J. Assoc of Analytical Chem Intl. 93, 1503 -1514 (2010). **[IF: 1.55]**

193. K. M. Ansari and Mukul Das: Potentiation of tumor promotion by topical administration of argemone oil and isolated sanguinarine alkaloid in mice. Chem Biol Interact 188, 591 – 597 (2010). **[IF: 3.10]**

194. A. Misra, R. Kumar, V. Mishra, B.P. Chaudhari, Mukul Das and P. D. Dwivedi: Partial characterization of Red gram (Cajanus cajan L.) polypeptides recognized by patients exhibiting rhinitis and bronchial asthama. Food Chem Toxicol 48, 2725 – 2736 (2010). **[IF: 3.01]**

195. S. Dixit and Mukul Das: Fast food mein prayog hone wale tomato aur chilli sauce mein paye jane wale benzoate sanrakshak aur kratym rango ka mulyankan avom kuprabhav. Vish Vigyan Sandesh 17/18, 50 – 56 (2010).

196. A. Dhawan, R. Shankar, Mukul Das and K. C. Gupta: Guidance for safe handling of nanomaterials. J. Biomed Nanotechnol 7, 218 – 224 (2011). **[IF: 2.626]**

197. A. Verma, A. Misra, Mukul Das and P. D. Dwivedi: Computational allergenicity prediction of transgenic proteins expressed in genetically modified crops. Immunopharmacol. Immunotoxicol 33, 410-422 (2011). **[IF: 1.829]**

198. K.K. Shukla, V. Mishra, A.A. Mahdi, R. Singh, S.N. Shankhwar, D. Patel and Mukul Das: Withania somnifera enhances the quality of sperms in infertile men by decreasing oxidative stress, DNA damage and apoptosis. Reproductive BioMedicine 22, 421-427 (2011). **[IF: 2.954]**

199. S. Dixit, S.K.Khanna and Mukul Das: Usage pattern of synthetic food colours in different states of India and exposure assessment through commodities preferentially consumed by children. Food Addit & Contaminants 28, 996 - 1005 (2011). **[IF: 2.230]**

200. A. Misra, R. Kumar, V. Mishra, B.P. Chaudhari, S. Raisuddin, Mukul Das and P. D. Dwivedi: Potential allergens of green gram (Vigna radiate L. Millsp) identified as member of cupin superfamily and seed albumin. Clinical & Exptl Allergy 41, 1157-1168 (2011). **[IF: 5.032] Cited on Cover page**

201. V. Mishra, M. Mishra and Mukul Das: **Edited a book** entitled "Edible oil Adulterants (Argemone oil and Butter yellow): Exposure risk- Toxicity and carcinogenic potential of argemone oil and butter yellow" (2011) Lambert Academic Publishing, Berlin, Germany.

202. R. Kumar, P. D. Dwivedi, A. Dhawan, Mukul Das and K. M. Ansari: Citrinin generated reactive oxygen species causes cell cycle arrest leading to apoptosis via intrinsic mitochondrial pathway in mouse skin. Toxicol Sciences 122, 557-566 (2011). **[IF: 5.093]**

203. Mukul Das: Food safety. www.vigyanprasar.gov.in (2011) p 1-7.

204. S. Kumar, A. Mishra, A.K. Verma, R. Roy, A. Tripathi, K. M. Ansari, Mukul Das, P.D.Dwivedi: Bt Brinjal in India: A long way to go. GM Crops 2, 92-98 (2011). **Cited on Cover page**

205. S. Kumar, A.K. Verma, A. Mishra, R. Roy, A. Tripathi, B. P. Chaudhari, R. Prasad, S. K. Jain, Mukul Das, and P.D. Dwivedi: Allergenic responses of red kidney beans (*Phaseolus vulgaris cv chitra*) polypeptides in BALB/C mice recognized by bronchial asthma and allergic rhinitis patients. Food Res Intl. 44, 2868-2879 (2011). **[IF: 3.150]**

206. S. Dixit, S. K. Khanna and Mukul Das: A simple method for simultaneous determination of basic dyes encountered in food preparations by reversed-phase liquid chromatography. J. Assoc of Analytical Chem Intl. 94, 1874-1881 (2011). **[IF: 1.55]**

207. Mukul Das: Toxicology and environmental safety of chemicals used in leather industry. J Indian Leather Tech Association LXI, 500-514 (2011).

208. N. Saxena, K.M. Ansari, R. Kumar, B.P. Chaudhari, P.D. Dwivedi and Mukul Das: Role of Mitogen activated protein kinases in skin tumorigenic potential of patulin. Toxicol Appl Pharmacol 257, 264-271 (2011). **[IF: 4.772]**

209. S. Dixit and Mukul Das: Bharat varsh ke bazaro mein bikne wale gair branded mirch powder ke namonoo ka mulyankan. Vish Vigyan Sandesh 18/19, 1-5 (2011).

210. A. Yadav, A. Kumar, P. D. Dwivedi, A. Tripathi and Mukul Das: In vitro studies on immunotoxic potential of Orange II in spleenocytes. Toxicol Lett 208, 239-245 (2012). **[IF: 3.851]**

211. V. Mishra, M. Mishra, K.M. Ansari, B.P. Chaudhari, R. Khanna and Mukul Das: Edible oil adulterants, argemone oil and butter yellow, as etiological agents for gall bladder cancer. European J Cancer 48, 2075-2085 (2012). **[IF: 5.536].**

212. R. Kumar, K. M. Ansari, N. Saxena, P. D. Dwivedi, S. K. Jain and Mukul Das: Risk assessment of Ochratoxin A through wheat consumption in Indian populattion. Food Control 26, 63-67 (2012). **[IF: 2.812]**

213. V. Mishra, K.M. Ansari, R. Khanna and Mukul Das: Role of ErbB2 mediated AKT and MAPK pathways in proliferation of primary cells of gall bladder induced by argemone oil and butter yellow. Cell Biology & Toxicology 28, 149-159 (2012). **[IF: 2.511]**

214. S. Kumar, A. Verma, Mukul Das and P. D. Dwivedi: Allergenic diversity among plant and animal food and their allergenicity. Food Reviews Intl 28, 277-298 (2012). **[IF: 1.457]**

215. A.K. Verma, S. Kumar, A. Tripathi, B. P. Chaudhari, Mukul Das and P.D. Dwivedi: Chickpea (*Cicer arietinum*) proteins induce allergic responses in nasobronchial allergic patients and BALB/c mice. Toxicol Lett 210, 24-33 (2012). **[IF: 3.851]**

216. A. Misra, S. Kumar, A. K. Verma, N. P. Chanana, Mukul Das, V. Dhawan and P. D. Dwivedi: Safety evaluation of genetically modified mustard (V4) seeds in terms of allergenicity: comparison with native crop. GM Crops 3, 273-282 (2012).

217. S. Dixit and Mukul Das: Analysis of trans- fatty acids in edible oils and fats from Indian markets. Journal of Food Sciences 77, T118-T199 (2012). **[IF: 1.775]**

218. R. Kumar, Mukul Das and K.M. Ansari: Nexrutine® induces apoptotic cell death in human squamous carcinoma 431 and human melanoma A375 cells and inhibits tumorigenesis in mouse skin. Carcinogenesis 33, 1897-1908 (2012). **[IF: 5.702]**

219. S. Kumar, A. K. Verma, Mukul Das and P. D. Dwivedi: Molecular mechanisms of IgE mediated food allergy. International Immunopharmacol 13, 432-439 (2012). **[IF: 2.417]**

220. R. Kumar, K. M. Ansari, P. D. Dwivedi, A. Dhawan, S. K. Jain and Mukul Das: Ochratoxin A induced oxidative DNA damage leads to tumor initiation in mouse skin. PLoS One 7, e47280, pp 1-12 (2012). **[IF: 4.5]**

221. S. Dixit, P.D. Dwivedi and Mukul Das: Simultaneous determination of Sudan Dyes along with Dimethyl yellow in Indian curry samples by Reverse Phase Liquid Chromatography. J Chromatography and Seperation Techniques 3.7, 1000150 online, pp 1-6 (2012). **[IF: 3.00]**

222. A. K. Verma, S. Kumar, Mukul Das and P. D. Dwivedi: Impact of thermal processing on legume allergens. Plant Foods for Human Nutrition 67, 430-441 (2012). **[IF: 2.505]**

223. S. Dixit and Mukul Das: Khadya sandushan avam milawat: Kitne surakshit ham. Vish Vigyan Sandesh 20, 32-40 (2012).

224. S. Kumar, A. K. Verma, Mukul Das and P. D. Dwivedi: A molecular insight of CTL-4 in food allergy. Immunology Letters 149, 101-109 (2013). **[IF: 2.526]**

225. S. Mishra, K. M. Ansari, H. P. Pandey, P. D. Dwivedi and Mukul Das: Surveillance of deoxynivalenol in cereals and its likely intake in Indian population. Food Control 30, 549-555 (2013). **[IF: 2.812]**

226. A. K. Verma, S. Kumar, Mukul Das and P.D Dwivedi: A comprehensive review of legume allergy. Clin Reviews Allergy & Immunol 45, 30-46 (2013). **[IF: 5.590]**

227. R. Kumar, S. Alam, B. P. Chaudhari, P. D. Dwivedi, S. K. Jain, K. M. Ansari and Mukul Das: Ochratoxin A-induced cell proliferation and tumor promotion in mouse skin by activating the expression of cyclin D1 and cyclooxygenase-2 through nuclear factor-kappa B and activator protein-1. Carcinogenesis 34, 647-657 (2013). **[IF: 5.702].**

228. M. Mishra, S. Ali and Mukul Das: A new extraction method for the determination of oxytocin in milk by EIA or HPLC: Validation by LC-MS. Food Analytical Methods 6, 1308-1319 (2013). **[IF: 1.969]**

229. A. Yadav, A. Kumar, A. Tripathi and Mukul Das: Sunset yellow FCF, a permitted food dye, alters functional responses of spleenocytes at non cytotoxic dose. Toxicol Lett 217, 197-204 (2013). **[IF: 3.851]**

230. S. Dixit, S. K. Khanna and Mukul Das: All India survey for analyses of colors in sweets and savories: Exposure risk in Indian population. J Food Sciences 78, T642-T647 (2013). **[IF: 1.775]**

231. A. Pal, S. Alam, J. Singhal, R. Kumar, K. M. Ansari and Mukul Das: Protective effect of topical application of α-tocopherol and/or N-acetyl cysteine on argemone oil/alkaloid induced skin tumorigenesis in mice. Nutrition & Cancer 65, Suppl 1, 78-87 (2013). **[IF: 2.783]**

232. S. Kumar, A. K. Verma, Mukul Das, S. K. Jain and P. D. Dwivedi: Clinical complications of kidney bean (*Phaseolus vulgaris L.)* consumption. Nutrition 29, 821-827 (2013). **[IF: 3.025]**

233. S. Kumar, A. K. Verma, A. Sharma, D. Kumar, A. Tripathi, B. P. Chaudhari, Mukul Das, S. K. Jain and P. D. Dwivedi: Phytohemagglutinins augment red kidney bean (Phaseolus vulgaris L.) induced allergic manifestations. J Proteomics 93, 50-64 (2013). **[IF: 4.878]**

234. M. Mishra, V. Mishra, B. P. Chaudhuri, V. Khanna, S. Mehrotra, S. Ali and Mukul Das: Anomalies in ovary following oral exposure to oxytocin: Mechanistic studies. Reproductive Toxicology 40, 24-34 (2013). **[IF: 3.226]**

235. S. Kumar, P. D. Dwivedi, Mukul Das and A. Tripathi: Macrophages in food allergy: An enigma. Molecular Immunology 56, 612-618 (2013). **[IF: 3.003]**

236. N. Dwivedi, S. Kumar, K. M. Ansari, S. K. Khanna and Mukul Das: Skin tumorigenic potential of benzanthrone: Prevention by ascorbic acid. Food Chem Toxicol 59, 687-695 (2013). **[IF: 3.01]**

237. S. Kumar, A. Sharma, A. K. Verma, B. P. Chaudhari, Mukul Das, S. K. Jain and P. D. Dwivedi: Allergenicity potential of red kidney bean (Phaseolus vulgaris L.) proteins in orally treated BALB/c mice and passively sensitized RBL-2H3 cells. Cellular Immunology 284, 37-44 (2013). **[IF: 1.743]**

238. S. Kumar, K. Gupta, Mukul Das and P. D. Dwivedi: The recent advancements in therapeutics of food allergy. Recent Pat Food Nutr Agric 5,188-200 (2013).

239. S. Dixit and Mukul Das: Bazar mein bikne wali shakahari aur mansahari curry namoono ka vishleshan. Vish Vigyan Sandesh 21 (2013) In press.

240. S. Alam, A. Pal, R. Kumar, P. D. Dwivedi, Mukul Das* and K. M. Ansari*: EGFR-mediated Akt and MAPKs signal pathways play a crucial role in Patulin-induced cell proliferation in primary murine keratinocytes via modulation of *Cyclin D1* and *COX-2* expression. Molecular Carcinogenesis 53, 988-998 (2014). **[IF: 4.269]**

241. R. Roy, S. Kumar, A. K. Verma, A. Sharma, B. P Chaudhari, A. Tripathi, Mukul Das and P. D. Dwivedi: Zinc oxide nanoparticles provide an adjuvant effect to ovalbumin via Th2 response in Balb/c mice. International Immunology 26, 159-172 (2014). **[IF: 3.415]**.

242. S. Mishra, S. Dixit, P. D. Dwivedi, H. P. Pandey and Mukul Das: Influence of temperature and pH on degradation of deoxynivalenol (DON) in aqueous medium: Comparative cytotoxicity of DON and degraded product. Food Addit & Contaminants 31, 121-131 (2014). **[IF: 2.230]**

243. D. Kumar, S. Kumar, A. K. Verma, A. Sharma, A. Tripathi, B. P. Chaudhari, S. Kant, Mukul Das, S. K. Jain, and P. D. Dwivedi: Hypersensitivity linked to exposure of Broad bean protein(s) in allergic patients and BALB/c mice. Nutrition 30, 903-914 (2014). **[IF: 3.025]**

244. R. Roy, V. Parashar, L. K. S. Chauhan, R. Shanker, Mukul Das, A. Tripathi and P. D. Dwivedi: Mechanism of uptake of ZnO nanoparticles and inflammatory responses in macrophages require PI3K mediated MAPKs signaling. Toxicol In Vitro 28, 457-467 (2013). **[IF: 2.871]**

245. R. Roy, S. Kumar, A. Tripathi, Mukul Das and P. D. Dwivedi: Interactive threats of nanoparticles to the biological system. Immunol Lett 158, 79-87 (2014). **[IF: 2.526]**

246. S. Kumar, A. Sharma, G. Singh, A.K. Verma, R. Roy, R. Gupta, M. Misra, A. Tripathi, K.M. Ansrai, B.P. Chaudhari, Mukul Das, S.K. Jain, P.D. Dwivedi: Allergenic responses of green gram (Vigna radiata L. Millsp) proteins can be vitiated by induction of oral tolerance due to single acute dose in BALB/c mice. Food Research International 57, 130 - 141 (2014). **[IF: 3.150]**

247. S. Kumar, A. K. Verma, A. Sharma, R. Roy, D. Kumar, B.H. Giridhar, A. Tripathi, B.P. Chaudhari, Mukul Das, S.K. Jain and P.D. Dwivedi: Phaseolin: A 47.5 kDa protein of red kidney bean (Phaseolus vulgaris L.) plays a pivotal role in hypersensitivity induction. International Immunopharmacol. 19, 178-190 (2014). **[IF: 2.417]**

248. G. Panigrahi, S. Tiwari, K. M. Ansari, R. K. Chaturvedi, V. K. Khanna, B. P. Chaudhari, V. M. Vashistha, S. Raisuddin and Mukul Das: Association between children death and consumption of *Cassia occidentalis* seeds: Clinical and experimental investigations. Food Chem Toxicol 67, 236-248 (2014). **[IF: 3.01]**

249. S. Kumar, A. Sharma, Mukul Das, S.K. Jain and P.D. Dwivedi: Leucoagglutinating phytohemagglutinin: Purification, characterization, proteolytic digestion and assessment for allergenicity potential in BALB/c mice. Immunopharmacol. Immunotoxicol. 36, 138-144 (2014). **[IF: 1.829]**

250. S. Kumar**,** A. Misra, A.K. Verma, A. Sharma, Mukul Das and P.D. Dwivedi: Red Gram (Cajanus cajan) proteins Induce hypersensitivity in BALB/c mice following oral exposure and cause mediators release from RBL-2H3 cells. Inflamm Allergy Drug Targets. **(**2014) In press. [Epub ahead of print]

251. K. Gupta, S. Kumar, Mukul Das and P.D .Dwivedi Peptide based immunotherapy: A pivotal tool for allergy treatment. International Immunopharmacol. 19, 391-398 (2014). **[IF: 2.417]**

252. V. Mishra, K.M. Ansari, B.P. Chaudhuri, R. Khanna and Mukul Das: Argemone oil and butter yellow induced toxicity in hepatic and extrahepatic tissues of mice. Bioenergetics 3, online 100011 (2014).

253. R. Roy, S. K. Singh, Mukul Das, A. Tripathi and P. D. Dwivedi: Role of TLR 6 and MAPKs on inflammation in ZnO nanoparticles primed macrophages. Immunology 142, 453-464 (2014). **[IF: 3.705]**

254. H. K. Maurya, S. K. Gautam, R. Pratap, V. K. Tandon,· A. Kumar, B. Kumar, S. Saxena, D. Tripathi, M. Rajwanshi, Mukul Das,* V. J. Ram*: Regioselective synthesis of polycyclic aza-oxa and aza-oxa-thia heteroarenes as Colo-205 and HepG2 carcinoma cells growth inhibitors. Eur J Medicinal Chem 81, 367-376 (2014). **[IF: 3.568]**

255. R. Roy, S. K. Singh, L.K.S. Chauhan, Mukul Das, A. Tripathi and P. D. Dwivedi: Zinc oxide nanoparticles induce apoptosis by enhancement of autophagy via P13/Akt/mTOR inhibition. Toxicol Lett 227, 29-40 (2014). **[IF: 3.851].**

256. M. Mishra, S. Ali and Mukul Das: Surveillance of oxytocin in milk samples and intake pattern in different age groups of Indian population. Toxicol Mech Methods 24, 342-346 (2014). **[IF: 1.380]**

257. T. J. John and Mukul Das: Acute encephalitis syndrome in children in Muzaffarpur: Hypothesis of toxic origin. Current Science 106, 1184-1185 (2014). **[IF: 0.947]**

258. P. D. Dwivedi, Mukul Das, S. Kumar and A. K. Verma: Safety assessment of food derived from genetically modified crops. In: Animal Biotechnology- Models in Discovery and Translation (2014) Academic Press, p509-524.

259. S. Mishra, A. Tripathi, B. P. Chaudhari, P. D. Dwivedi, H. P. Pandey and Mukul Das: Deoxynivalenol induced mouse skin cell proliferation and inflammation via MAPK pathway. Toxicol Appl Pharmacol 279, 186-197 (2014). **[IF: 4.722]**

260. G. Panigrahi, A. Yadav, A. Yadav, K. M. Ansari, R. K. Chaturvedi, V. M. Vashistha, S. Raisuddin and Mukul Das: Hepatic transcriptional analysis in rats treated with Cassia occidentalis seed: Involvement of oxidative stress and impairment in xenobiotic metabolism as a putative mechanism of toxicity. Toxicol Lett 229, 273-283 (2014). **[IF: 3.851]**

261. R. Roy, L.K.S. Chauhan, Mukul Das, A. Tripathi and P. D. Dwivedi: Phagocytic cells internalize ZnO particles by FcγII/III-receptor pathway. Immunobiology 219, 746-755 (2014). **[IF: 3.18]**

262. S. Mishra, P. D. Dwivedi, H. P. Pandey and Mukul Das: Role of oxidative stress in Deoxynivalenol induced toxicity. Food Chem Toxicol 72, 20-29 (2014). **[IF: 3.01]**

263. R. Roy, D. Kumar, A. Sharma, P. Gupta, B. P. Chaudhari, A. Tripathi, Mukul Das, and P. D. Dwivedi: ZnO nanoparticles induced adjuvant effect via toll-like receptors and Src signaling in Balb/c mice. Toxicol Lett 230, 421-433 (2014). **[IF: 3.851]**

264. A. K. Verma, S. Kumar, B. P. Chaudhari, N. Tuteja, Mukul Das, P. D. Dwivedi: Allergenicity assessment of genetically-modified tobacco expressing salt tolerance cbl gene. Plant Foods for Human Nutrition 69, 209-215 (2014). **[IF: 2.505]**

265. A. K. Verma, S. Kumar, A. Sharma, D. Kumar, R. Roy, R. K. Gupta, B. P. Chaudhari, B. H. Giridhar, Mukul Das and P. D. Dwivedi.: Allergic manifestation by black gram (Vigna mungo) proteins in allergic patients, BALB/c mice and RBL-2H3 cells. International Immunopharmacol. 23, 92-103 (2014). **[IF: 2.417]**

266. A. Sharma, S. Kumar, R. K. Gupta, R. Roy, K. Gupta, A. K. Verma, B. P. Chaudhari, Mukul Das and P. D. Dwivedi: Elucidation of immediate type I reactions in native and GM mustard (Brassica sps.). Food Research International 64, 810-821 (2014). **[IF: 3.15]**

267. R. Roy, Mukul Das and P. D. Dwivedi: Toxicological mode of action of ZnO nanoparticles: Impact on immune cells. Molecular Immunology 63, 184-192 (2015). **[IF: 3.003]**

268. S. D. Rastogi, S. Dixit, A. Tripathi* and Mukul Das*: Simultaneous determination of acetaminophen and the color excipient by derivatized spectroscopy in syrup formulations: Exposure risk of colors to children. AAPS Pharm Sci Tech (2014) In press. **[IF: 1.776]**.

269. S. Dixit, A. Yadav, P. D. Dwivedi and Mukul Das: Toxic hazards of leather industry and technologies to combat threat: A review. J. Cleaner Production 87, 39-49 (2015). **[IF: 3.59]**

270. P. Tewari, R. Roy, S. Mishra, A. Yadav, B. P. Chaudhari, R. K. Chaturvedi, P. D. Dwivedi, A. Tripathi* and Mukul Das*: Benzanthrone induced immunotoxicity via oxidative stress and inflammatory mediators in female Balb/c mice. Immunobiol 220, 369-381 (2015). **[IF: 3.18]**

271. S. Alam, R. S. Yadav, A. Pal, S. K. Purshottam, B. P. Chaudhari, Mukul Das and K. M. Ansari: Dietary administration of Nexrutine inhibits rat liver tumorigenesis and induces apoptotic cell death in human hepatocellular carcinoma cells. Toxicol Reports 2, 1-11 (2015).

272. G. K. Panigrahi, R. Sekhar CH, M.K.R. Mudiam, V. M. Vashishtha, S. Raisuddin and Mukul Das: Activity guided chemo toxic profiling of Cassia occidentalis (CO) seeds: Detection of toxic compounds in body fluids of CO exposed patients and experimental rats. Chem Res Toxicol (2015) In press. **[IF: 4.2]**

273. G. K. Panigrahi, A. Yadav, A. Srivastava, A. Tripathi, S. Raisuddin and Mukul Das: Mechanism of Rhein induced apoptosis in rat primary hepatocytes: Beneficial effect of Cyclosporine A. Chem Res Toxicol (2015) In press. **[IF: 4.2].**

Average IF of 273 papers	**2.70**
Average IF of 225 refreed papers	**3.27**
Average IF of 127 papers with IF > 3.0	**4.42**
Average IF of 84 papers with IF > 3.4	**5.10**
Average IF of 60 papers with IF > 4.0	**5.61**