

**DR. ARCHANA KUMARI****Present status:**

**Assistant Professor**  
**Department of Biotechnology**  
**Guru Ghasidas Vishwavidyalaya**

**Qualification:**

**M.Sc. Biotechnology**  
**Ph.D. Biotechnology**  
**GATE 2003 Qualified**

Ph.D. Thesis on: “Modulation of free radical mechanisms during hepatotoxicity and its amelioration by *Crataeva nurvala*”.

M.Sc. Thesis on: Avidin-Biotin ELISA for Brucellosis and Infectious Bovine Rhinotracheitis.

**Details of Research work done:**

**Culture Techniques:** Basic culture techniques including Isolation of rat hepatocytes, Counting of cells in hemocytometer, different cell culture based assays like MTT, Alamar blue, LDH release assays. Hands on experience in hepatocytes.

**Molecular Biology:** Isolation of DNA and RNA from cultured hepatocytes as well as treated liver tissues. mRNA level of expression of different gene by real time PCR, Analysis of proteins by SDS-PAGE and western blot.

**Flow cytometric studies:** Mitochondrial membrane potential, ROS level and RNS level, cell cycle analysis and apoptotic and necrotic DNA detection by different fluorescent probe in hepatocytes.

**Fluorescent microscopy studies:** TUNEL assay, chromatin condensation by Hoechst stain.

**Assessment of antioxidant potential:** SOD mimetic activity, GSH and GSSG, LPO Inhibitory Potential, NO quenching capacity. Thiol contents, Total antioxidant assay.

**Assessment of contaminant levels in Medicinal plants:** Checking the contaminant levels such as Heavy metal and Pesticides different regions of Indian medicinal plants by AAS.

**Chromatographic studies:** **Chromatographic studies:** Chemical fingerprint profile of selected medicinal plants by HPLC and HPTLC. Isolation of bioactive constituents of medicinal plants by preparative HPLC & Chemical characterization by: GC-MS, NMR and IR spectroscopic study. Plasma level of drug concentration was also studied by HPLC.

**In vivo Studies:** Acute, Sub-acute, Sub-chronic and Chronic Toxicity in different coded ayurvedic herbal formulation following OECD Guidelines.

**Publications:****Research Papers**

- **Kumari, A.,** Kakkar, P. (2008). Screening of antioxidant potential of selected barks of Indian medicinal Plants by multiple *in vitro* assays. *Biomedical and Environmental science*, 21, 24-29.
- **Kumari, A.,** Kakkar, P. (2012). Lupeol protects against acetaminophen-induced oxidative stress and cell death in rat primary hepatocytes. *Food and Chemical Toxicology*, 50(5): 1781-9.
- **Kumari, A.,** Kakkar, P. (2012). Lupeol prevents acetaminophen-induced *in Vivo* hepatotoxicity by altering the Bax/Bcl-2 and oxidative stress-mediated mitochondrial signaling cascade. *Life Sciences*, 90 (15-16), 561-570.
- Kumari Anjana, V.P. Vadlamudi, K. M. Koley, Gayatri Dewangan, R.K Nirala, Sushant Parekar and **Archana Kumari**. (2015). Antipyretic effect of hot Methanolic leaves extract of *Calotropis Gigantea* on Brewer's Yeast induced pyrexia. *Journal of Veterinary Pharmacology and Toxicology*, 14 (2):89-90.
- Anjana Kumari, R.K Nirala, **Archana Kumari** and SK Mody (2017). Pharmacokinetics and Bioavailability of long term acting Moxifloxacin in Goats. *Ruminant Science*, 6, 283-288.
- Kumari Anjana, SK Mody, R.K Nirala, and **Archana Kumari** (2017). Effect of Moxifloxacin in Goats. *International Journal of Current Microbiology and applied Science*. 6 (3), 1104-1108.

#### Conference Papers

- **Kumari, A.,** Mishra, C., Kakkar, P. (2005). Comparative antioxidant potential of barks of selected medicinal plants using microassays. In: International conference on Toxicology, Environmental and Occupational Health (ICOTEOH) by Society of Toxicology at Lucknow, November 14-17, Abs S9, PP-14.
- Sharma, S., Mishra, C., **Kumari, A.,** Kakkar, P., (2006). Antimicrobial, antioxidant capacity and chemical fingerprint profile of *Zingiber officinale* from different ecological zones of India. In: XXIX All India Cell Biology conference & symposium on gene to genome: Environmental & chemical interactions (AICBC'2006) at ITRC, Jan 17-20, PP- 82.
- Sharma, S., Singh J., **Kumari, A.,** Mishra C., Kakkar, P., (2007). RAPD Profile, Antioxidant and Antimicrobial Potential of *Zinzipber officinale* collected from different ecological zones of India. In: XXVII Annual conference of Society of Toxicology, India (STOX) at Bangalore, Oct 6<sup>th</sup> -7<sup>th</sup>, P- Ab04.
- Kakkar, P., **Kumari, A.,** (2010). Anti-apoptotic and antioxidant activity of lupeol from *Crataeva nurvala* against acetaminophen induced toxicity in rat hepatocytes. In: 4<sup>th</sup> Indo-Italian seminar on green chemistry and natural products at Delhi, Nov 17<sup>th</sup>, IL-3.
- **Kumari, A.,** Kakkar, P., (2018). Protective role of probiotic against acetaminophen induced nephrotoxicity in male wistar rats. In: International conference on emerging

researches in bioscience (ICERB) at Guru Ghasidas Vishwavidyalaya, Bilaspur, Oct 28-30, Ab-76.

- Kashyap, V., **Kumari, A.**, Kashyap, S., (2018). Nitrogen doped carbon quantum dots (NCQDS): A bio-imaging probe. In: International conference on emerging researches in bioscience (ICERB) at Guru Ghasidas Vishwavidyalaya, Bilaspur, Oct 28-30, Ab-53.

**Workshop attended:**

- (i) National workshop on “Advance Technique of Molecular Biology” Varanasi, held under the sponsorship of Indian council of Medical Research (ICMR), New Delhi from March 7-9, 2008.
- (ii) National Workshop on “Application of Bioinformatics Tools in Biotechnology” Lucknow held under sponsorship of Department of Biotechnology, New Delhi from October 21- 23, 2008.

**Short term course attended:**

Short term course (GIAN) on “Cancer Health Disparity” at GGV Bilaspur held under the sponsorship of MHRD Khargpur, from 18<sup>th</sup> -22<sup>nd</sup> December, 2017.

**Invited Lecture/Resource Person:**

- i) Department of Biotechnology Guru Ghasidas Vishwavidyalaya, Bilaspur, Invited a talk on acetaminophen-induced oxidative stress and cell death in rat primary hepatocytes and its amelioration by *Crataeva nurvala* in “National workshop on Animal cell culture Techniques and applications” which was held on 18<sup>th</sup>-24<sup>th</sup> Jan 2018.