Ameliorative Potential of *Ocimum sanctum* (Holy basil) on Tobacco Induced Genetic Damage: An *in vitro* Study

**Poonam Shukla**  
(Corresponding author)  
Department of Zoology, Govt. O.F.K. College, Jabalpur, M.P., India  
Residence: Ms. Poonam Shukla, c/o Dr. A.K. Shukla, 1331, East Ghampur, Shitlamai, Jabalpur (482001), M.P., India  
Email: poonamshukla1@yahoo.com, poonamshuklaa@rediffmail.com  
Tel. no. +91-9752862339

**Asha Khanna**  
Department of Zoology and Biotechnology, St. Aloysius’ College, Jabalpur, M.P., India

**Salil Kumar Jain**  
Directorate of Research Services, J.N.K.V.V., Jabalpur, M.P., India

**Abstract** - The present research work comes in the discipline of Biological Sciences with Occupational Hazard being the specific area of work. The study was aimed to evaluate ameliorative effect of *Ocimum sanctum* (Holy basil) extract (OE) on genetic damage induced by tobacco extract. The endpoint evaluated was chromosomal aberrations (CA) in cultured lymphocytes of controls and *bidi* rollers. The student’s *t* test was used for statistical evaluation of the results.

The blood of *bidi* workers (*bidi*: an Indian version of cigarette) exhibiting significant level of genotoxicity (as compared to controls) was treated with OE @12 μg/ml of culture. This concentration was chosen as it showed a genoprotective action on TE induced toxicity in *in vitro* studies. There was reduction (p>0.05) in CA, due to presence of *Ocimum sanctum* in cultures.

*Ocimum sanctum* was found to be genoprotective in *in vitro* tobacco extract induced genotoxicity. However, in the case of spontaneous genotoxicity in occupationally exposed *bidi* rollers the difference between the *in vitro* treated and non-treated cultures was non significant.

It infers that *Ocimum sanctum* may have a genoprotective role and may not have a therapeutic role. Since, the *Ocimum sanctum* was already present in *in vitro* tobacco induced genotoxicity cultures and not in the system of *bidi* rollers.

**Remark:** The full paper may be found in www.inrit2011.com or www.ijcim.th.org.