

Report on the Ph.D Thesis entitled "Mutagenic and antimutagenic activity of Ginger (*Zingiber officinale*) and Red Chili (*Capsicum annuum*) In in vitro and in vivo test systems" by Sonal Gupta submitted for the degree of Ph.D in Biochemistry, Jiwaji University, Gwalior based on the research work carried out under the guidance of Dr. G.P. Meshram and Dr. (Mrs.) N. Srivastava.

The present investigation essentially deals with the possible mutagenic as well as antimutagenic activity of Red Chilli (*Capsicum annuum*) and Ginger (*Zingiber officinale*) using in vitro Ames Salmonella / microsome mutagenicity test and further confirmation by in vivo mouse bone marrow micronucleus test. The possible role of pure capsaicin and dihydrocapsaicin on the mutagenic and antimutagenic activity of chilli extract and comparative antimutagenic activity of Chilli and Ginger extracts with known antimutagenic phytochemicals were also evaluated.

The study is well planned and focused, considering the fact that the study is carried out in a stipulated time period. The methodology used is appropriate and the results obtained as evidenced from the tables (Ames test) support the conclusions arrived at. Convincing evidence in the form of good quality photomicrographs (MN) further support the assumptions.

Analysis of bone marrow micronucleated polychromatic erythrocytes does provide a rapid and simple method for in vivo genotoxicity studies. The following points however need clarification.

1. PCE / NCE ratio should have been provided in the table. This can give an indication of suppression of erythropoiesis, if any.
2. Frequencies of micronucleated PCEs and NCEs should also be given separately.

A considerable number of micronucleated polychromatic (PCE) erythrocytes migrate to peripheral blood, where they ultimately mature into normochromatic (NCE) erythrocytes, thus raising the frequency of these cells in the peripheral blood. Investigations delineating the relationship between the induction of micronucleated erythrocytes in bone marrow and their later migration to peripheral blood can lead to more meaningful conclusions.

Literature review is current. However, 42 references mentioned in the text are not included in the bibliography. In case of another 27 references, authors names / year of publication etc. do not match. (The list is enclosed) All these omissions should be corrected, and included separately as an addendum. The corrections should be incorporated into all the copies of thesis submitted to the Department, Institutional Library, University etc. The volume of syntax errors does not reflect favorably on the quality expected from a Ph.D thesis. These corrections should be made, wherever possible.

Dr.Mrs.Krishnaja, A.P.
Genetic Toxicology and Chromosome Studies Section
Radiation Biology and Health Sciences Division
Bhabha Atomic Research Centre
Mumbai. 400088.