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Genotoxicity Testing of the Food Colours Amaranth and Tartrazine

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ABSTRACT Colour, a vital constituent of food, is indispensable to the modern day consumer as a means for the rapid identification and ultimate acceptance of food. A number of reviews concerning the toxicology of natural and synthetic dyes, especially those used in food, have appeared since the dyestuffs became potential suspects for causing cancer. A large number of natural or synthetic dyes have been removed from both national and international lists of permitted food colours because of their mutagenic or carcinogenic activity. To the majority of the food additive JECFA/FAO has assigned "Admissible Daily Intake Dose" –ADI, which are often temporary and emphasized the need for further genotoxic evaluation, since a number of them are reported to be genotoxic below the ADI dose. In India, the problem is severe because in spite of regulation and restrictions by the Prevention of Food Adulteration Act of 1954, use of non-permitted food colours is prevalent. We have tested the mutagenic and genotoxic effects of amaranth, and tartrazine utilizing Ames mutagenicity assay and in vivo mouse bone marrow assay. *Salmonella typhimurium* TA97a, TA98 and TA100were used for Ames Mutagenicity Assay without metabolic activation. The dyes were dissolved in sterile double distilled water at different concentrations (10,100,250,500 and1000 µg /plate) For genotoxicity testing four animals per dose were administered intra peritoneally with the different doses of the amaranth or tartrazine (50,100 and 200 mg/kg body weight). The results show that with in the restriction of the protocol followed, the dyes were found to be non mutagenic and non genotoxic

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