

## **In vivo and in vitro genotoxic effects of zerumbone.**

### **ABSTRACT**

Zerumbone (ZER) is derived from *Zingiber zerumbet* Smith from the Zingiberaceae family. It has been shown to have anti-cancer and apoptosis-inducing properties against various human tumour cells. The aim of our study was to assess the genotoxic effects of ZER in cultured human peripheral blood lymphocytes, Chinese Hamster Ovary (CHO) cells and rat bone marrow polychromatic erythrocytes (PCEs) using micronucleus test (MN). All in vitro treatments were carried out in the absence of any exogenous metabolic activation system. Mitomycin C (MMC) was used as a positive control for in vitro treatments, while cisplatin was used as a positive micronucleus inducer in rat bone marrow PCEs. ZER at high concentrations induced an apparent significant increase in the frequency of micronuclei in vivo (1000 mg/kg b.w) and in vitro (40 and 80  $\mu$ M) compared to concurrent control values. Our in vivo and in vitro cytogenotoxicity studies suggest that high doses of ZER may be genotoxic and cytotoxic.

**Keyword:** Cho; Genotoxicity; Human peripheral blood lymphocytes; Micronucleus; Mnpces; Zerumbone.