

**Anticarcinogenic activity of *Muntingia calabura* leaves methanol extract against the azoxymethane-induced colon cancer in rats involved modulation of the colonic antioxidant system partly by flavonoids**

**ABSTRACT**

**Context:** Leaves of *Muntingia calabura* (Elaeocarpaceae) are widely used in traditional medical practice; scientific findings show various pharmacological activities. However, its anticancer effect has not been investigated thoroughly yet.

**Objective:** The objective of this study is to study the chemoprevention effects of MEMCL against azoxymethane (AOM)-induced colon cancer and to examine the involvement of endogenous antioxidants.

**Materials and methods:** Male Sprague-Dawley rats, divided into five groups (n = 7), were injected intraperitoneally once weekly for 2 weeks with 15 mg/kg AOM, except for the normal group (received saline). The animals were then administered orally for 8 weeks with 8% Tween-80 (vehicle; normal group), 8% Tween-80 (vehicle; cancer group) or, 50, 250 or 500 mg/kg MEMC. After treatments, colon samples were collected from each rat for the histopathological analysis, quantification of aberrant crypt foci formed and determination of colon antioxidant levels. MEMC was also subjected to HPLC analysis.

**Results:** The extract exerted significant ( $p < 0.05$ ): (i) anti-carcinogenesis activity, indicated by a decrease in the total aberrant crypt formation; (ii) antioxidant activity by increasing the colon tissue antioxidant markers [i.e., superoxide dismutase (SOD), catalase (CAT) and glutathione (GSH)] and reducing the oxidant marker (i.e., malonaldehyde (MDA) levels in comparison with the cancer group. HPLC analysis demonstrated the presence of rutin.

**Discussion and conclusions:** *Muntingia calabura* leaves exert anticancer effect against AOM-induced colon cancer possibly via the action of flavonoids on the colon tissue antioxidant activity.

**Keyword:** Chemoprevention; Endogenous antioxidant system; Rutin