

Chemopreventive effects of germinated rough rice crude extract in inhibiting azoxymethane-induced aberrant crypt foci formation in Sprague-Dawley rats

ABSTRACT

Chemoprevention has become an important area in cancer research due to low success rate of current therapeutic modalities. Diet plays a vital role in the etiology of cancer. This research was carried out to study the chemopreventive properties of germinated rough rice (GRR) crude extract in *Sprague-Dawley* rats induced with azoxymethane. Germination of rough rice causes significant changes in several chemical compositions of presently bioactive compounds. These compounds may prevent or postpone the inception of cancer. Fifty male Sprague-Dawley rats (6 weeks of age) were randomly divided into 5 groups which were (G1) induced with azoxymethane (AOM) and not given GRR (positive control), (G2) induced with AOM and given 2000 mg/kg GRR, (G3) induced with AOM and given 1000 mg/kg GRR, (G4) induced with AOM and given 500 mg/kg GRR, and (G5) not induced with AOM and not given GRR crude extract (negative control). To induce colon cancer, rats received two IP injections of AOM in saline (15 mg/kg) for two subsequent weeks. Organs were removed and weighed. Aberrant crypt foci (ACF) were evaluated histopathologically. β -Catenin expressions were determined by Western blot. Treatment with 2000 mg/kg GRR crude extract not only resulted in the greatest reduction in the size and number of ACF but also displayed the highest percentage of nondysplastic ACF. Treatment with 2000 mg/kg GRR also gave the lowest level of expression in β -catenin. Thus, GRR could be a promising dietary supplement for prevention of CRC.

Keyword: Chemopreventive; Germinated rough rice; Sprague-Dawley rats