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Effect of soy saponins on rat colon tumor formation and expressions of pro-inflammatory molecules

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Soy saponin extract was shown to suppress the growth of colon tumor cells and the expression of pro-inflammatory molecules in vitro. To evaluate the efficacy of soy saponins in AOM-induced colon tumor formation, male F344rats were divided into four diet groups (AOM-control; AOM+0.1% crude soy saponin extract; AOM+ 0.1% commercial soy saponin; Saline+0.1% commercial soy saponin). Starting on wk2, animals in groups 1 to 3 were injected with 15mg/Kg AOM once weekly for twice, while animals in group 4 were injected with saline. A half of animals were sacrificed on wk 11 to observe ACF (aberrant crypt foci) formation, and the other half were sacrificed on wk33 to observe tumor formation. Also, the expressions of Cox-2 and PKC in colon mucosa were determined. Results showed that animals fed saponin-supplemented diet had significantly lower number of ACF, AC and ACF with more than 4AC. The tumor incidence of AOM control rats was higher(2.45) than that of rats fed crude saponin extract(1.68) or commercial soy saponin(1.81), although no statistical significance was found. The saponin supplementation reduced COX-2 and PKC expressions in rats sacrificed on wk 11 and wk 33. These result indicate that soybean saponins may suppress precancerous marker formation, while other modulators are important for tumor formation.