

Pro-apoptotic effect of rice bran inositol hexaphosphate (IP6) on HT-29 colorectal cancer cells

Abstract

Inositol hexaphosphate (IP6), or phytic acid is a natural dietary ingredient and has been described as a “natural cancer fighter”, being an essential component of nutritional diets. The marked anti-cancer effect of IP6 has resulted in our quest for an understanding of its mechanism of action. In particular, our data provided strong evidence for the induction of apoptotic cell death, which may be attributable to the up-regulation of Bax and down-regulation of Bcl-xl in favor of apoptosis. In addition, the up-regulation of caspase-3 and -8 expression and activation of both caspases may also contribute to the apoptotic cell death of human colorectal adenocarcinoma HT-29 cells when exposed to IP6. Collectively, this present study has shown that rice bran IP6 induces apoptosis, by regulating the pro- and anti-apoptotic markers; Bax and Bcl-xl and via the activation of caspase molecules (caspase-3 and -8)

Keyword: Inositol hexaphosphate; Rice bran; Apoptosis; Colorectal cancer