

P091 Effects of isoflavones in soybean-processing by-products on reducing spontaneous mutagenesis in mismatch-repair deficient cells

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We have found that the extracts from commercial soybean processing by-products, "Nova soy" (Archer Daniels Midland Co, Decatur, IL) and "Refined soy" (Central Soya Company, Fort Wayne, IN) were antimutagenic in human mismatch repair deficient HCT116 colon cancer cells. The Nova soy, containing soy saponin B (8%) and isoflavones (49.5%), showed a strong inhibitory effect on spontaneous mutation rates in three-week continuous growth assays, effectively reducing the spontaneous mutation rate by 32% (10 µg/ml) and 62% (20 µg/ml). In comparison, the Refined soy containing soy saponin B (93%) and no isoflavones, reduced the spontaneous mutation rate by only 13% (10 µg/ml) to 20% (20 µg/ml). In order to evaluate the antimutagenic mechanisms of the soybean by-products, the individual isoflavones (genistein, genistin and daidzin) that are contained in the Nova soy were tested in the same assay system. Only daidzin (3.55 µM) exhibited a consistent antimutagenic effect, reducing spontaneous mutation rates by 61%. At the higher doses the isoflavones were not effective antimutagens. We suggest that the combination of each isoflavones and soy-saponin is more effective compared to individual isoflavones.

Collaborators

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大豆加工製品およびイソフラボンの自然発生突然変異抑制効果

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P092 Ethyl acetate extracts of brewed vinegars inhibit the tumor promotion induced by TPA in JB6 mouse epidermal cell lines

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It is known that wine vinegar, especially Balsamic one, would be contained much higher polyphenolic compounds among the other brewed vinegars made from fruits and cereals. The polyphenolic extracts will be expected to play a role in cancer prevention. The effect of ethyl acetate (EtOAc) extracts from nine brewed vinegar on the tumor promotion induced by 12-*O*-tetradecanophorbol-13-acetate (TPA) in JB6 mouse epidermal cell lines were investigated.

Nine brewed vinegars included Balsamic vinegars (#1, #2), wine vinegars (red: #3, white: #4), cider vinegars (#5, #6), rice vinegars (#7, #8), and cereals vinegar (#9). EtOAc extracts of the nine vinegars and a methanol (MeOH) extract of vinegar #3 were prepared as fluid mixtures which were analyzed by TLC, HPLC, and HPLC-MS/MS. The effects of EtOAc and MeOH extracts on the soft agar colony induction were investigated. Antitumor-promoting activities of nine brewed vinegar EtOAc extracts were determined, because the each main peak of EtOAc and MeOH extracts from sample #3 was identically detected by TLC and HPLC-analysis, and they would be main active component. Every EtOAc extract decreased the tumorigenic transformation of JB6 cells induced by TPA at the IC₅₀ of 8.5 to 26.9 mg/ml without cytotoxicity towards normal cell lines. Those are indicated that brewed vinegar contained same active ingredient which is could be useful to prevent tumor promotion.

醸造食酢のJB6細胞系における発がんプロモーション抑制作用

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