Determination of Genistin, Genistein and Daidzein contents in soy products

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Isoflavones are the major phenolic compounds in soybean. Concentration of isoflavone compounds can be as high as 3 mg/ g in soybean. These isoflavones exist in the form of aglucones (daidzein, genistein, glycitein) and their β-glucoside conjugates, the malonyl glucosides and the acetylglucosides. It has been suggested that the isoflavone, genistein may have some role as a chemopreventive agent against cancer in humans. Because of the ever increasing use of soybean protein products in foods, it is necessary to know the concentration of these biologically active compounds in various commercial products. This study was conducted for the quantification of isoflavones. As HPLC gave consistent results it was chosen to quantitatively measure the isoflavones in soy products which included defatted soy flour, soy isolate, soy protein concentrate, soy protein hydrolysate, soy milk, soy paneer (pressed product after removing whey from soy milk), commercial isolate etc.

The results revealed low levels of genistein (9.48-182.5 μg/ g product) and daidzein (1.9-39.4 μg/ g product) in soy protein products but large amounts of the isoflavone glucoside genistin (85-1577 μg/ g product). Soy milk and soy paneer which involve heating to 100 °C during their preparation contained more isoflavone glucoside, genistin. The soy protein concentrate prepared by alcohol leach method showed loss of isoflavones compared to hot-water leach method because the isoflavones are soluble in aqueous alcohol and are removed during processing.

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