

Antioxidant Properties of Soybean Residue from Soy Milk Production

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Abstract:

Soybean milk production has produced a vast number of residues which are normally used as animal feed. However, this residue could be a good source of nutrients and phytochemicals. The aim of this present study was to investigate the antioxidant properties including phenolic content and antioxidant activity of soybean residues (SR) from soy milk production. The results showed that total phenolic content (TPC) of SR was slightly lower when compared to raw soybean. Free phenolic content of SR was not significantly different ($p < 0.05$) when compared to bound phenolic content of SR samples while free flavonoid content of SR was significantly ($p < 0.05$) higher than bound flavonoid content of SR samples. Additionally, the antioxidant activities were determined by DPPH and FRAP assays. The DPPH value of raw soybean was significantly ($p < 0.05$) lower than that of SR samples. Free and bound DPPH values of SR in a range of 30-44% and 57-92%, respectively. The highest values of FRAP were found in raw soybean and followed by SR samples, respectively. Free and bound FRAP values of SR in a range of 0.7-1.1 and 0.1-0.6 mmol FeSO₄/g DW, respectively. Our findings were suggested that soybean residue from soy milk production is a potential source of free and bound phenolic compounds with antioxidant activities which could be used to utilize for functional food products.

Keywords: Soy milk residue, antioxidant activity, phenolics, flavonoids, Isoflavones