Study of process conditions for obtaining black soymilk

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Black soybeans are known as an herbal and health-food ingredient for hundreds of years in the Eastern Medicine mainly due of the bioactive compounds, especially anthocyanins. However, little information is available about black soybean healthy food products possessing, like soymilk or beverages. Preliminary studies showed that black soymilk made from milled soybean instead of whole grain presented higher anthocyanins content and antioxidant activity. The objective of this study was to identify the best conditions for black soymilk processing, considering cooking time and process temperature, by using a 2^2 factorial design with three central points. Temperature ranged from 80°C to 98°C and cooking time from 5 to 15 minutes. Anthocyanins (mg/100g) and isoflavones (aglycon equivalent mg/100g) were determined by HPLC systems and antioxidant activities were estimated using 2,2-diphenyl-1-picryhydrazyl (DPPH) free radical scavenging and oxygen radical absorbance capacity (ORAC). We concluded that time and temperature were significant ($p \leq 0.05$) for anthocyanins content and antioxidant activity. Isoflavone content ranged from 138.74 (98°C/15 min) to 148.68 (89°C/10 min) mg/100g dry wt; anthocyanins content ranged from 41.03 (80°C/15 min) to 49.97 (80°C/5 min) mg/100g dry wt.The 5min cooking time/80°C was the best black soymilk processing condition considering all the parameters evaluated in this study.

Keywords: Black soymilk, process, antioxidant activity