

## Evaluation of Chromium Fortified - Parboiled Rice Coated with Herbal Extracts: Cooking Quality and Sensory Properties

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**Abstract :** Parboiled rice was developed to produce rice, which has a low glycemic index for diabetics. However, diabetics also have a chromium (Cr) deficiency. Thus, it is important to fortify rice with Cr to increase the Cr content. Moreover, parboiled rice becomes rancid easily and has a musty odor, rendering the rice unfavorable. Natural herbs such as pandan leaves (*Pandanus amaryllifolius* Roxb.), bay leaves (*Syzygium polyanthum* [Wigh] Walp) and cinnamon bark powder (*Cinnamomum cassia*) are commonly added to food as aroma enhancers. Previous research has shown that these herbs could improve insulin sensitivity. The purpose of this study was to evaluate the effect of herbal extract coatings on the cooking quality and the preference level of chromium fortified - parboiled rice (CFPR). The rice grain variety used for this experiment was Ciherang and the fortificant was CrCl<sub>3</sub>. The three herbal extracts used for coating the CFPR were cinnamon, pandan and bay leaf, with concentration variations of 3%, 6%, and 9% (w/w) for each of the extracts. The samples were analyzed for their alkali spreading value, cooking time, elongation, water uptake ratio, solid loss, colour and lightness; and their sensory properties were determined by means of an organoleptic test. The research showed that coating the CFPR with pandan and cinnamon extracts at a concentration of 3% each produced a preferred CFPR. When coated with those herbal extracts the CFPR had the following cooking quality properties: alkali spreading value 5 (intermediate gelatinization temperature), cooking time, 26-27 min, color value, 14.95-15.00, lightness, 42.30 - 44.06, elongation, 1.53 - 1.54, water uptake ratio, 4.05-4.06, and solid loss, 0.09/100 g - 0.13 g/100 g.

**Keywords :** bay leaves, chromium, cinnamon, pandan leaves, parboiled rice

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