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## Optimization of parboiling conditions of local rice varieties in the Philippines

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Parboiling is a hydro thermal treatment of paddy before milling. It consists of three steps: 1) Soaking of rough rice, 2) steaming of soaked rice and 3) drying of steamed rice. Parboiling changes the physical and chemical modifications in the grain, fills the void spaces and cements the cracks inside the endosperm making the grain harder, hence, minimizing internal fissure and breakage during milling. Eleven (11) rice sample varieties namely: NSIC:Rc 118 (V1), NSIC:Rc 254H (V2), NSIC 238 (V3), Selection 64 (V4), Rc 158 (V5), 75 days (V6), NSIC 216 (V7), Japonica (V8), Rc 18 (V9), PHB 77 (V10) and Rc 218 (V11) were collected from four (4) provinces of Agusan del Sur, North Cotabato, Palawan and Oriental Mindoro. Three soaking temperature settings (40oC, 50oC, 60oC) and three (3) soaking time (1 hour, 2 hours, 3 hours) were applied followed by steaming at 121° C for 5 minutes using autoclave. The parboiled rice was dried to a moisture content of 14% (wb) before milling. The physical qualities of parboiled rice kernel were evaluated in terms of milling recovery, percent head rice and whiteness. Results showed that the quality of parboiled rice was significantly affected by the parboiling process such as soaking temperature and exposure time. The suitable soaking temperature and time of the selected rice varieties to obtain the highest milling and head rice recovery were as follows: V1 (60o C @ 3 hours); V2 (60o C @ 2 hours), V3 (60o C @ 2 hours); V4 (60o C @ 3 hours); V5 (60o C @ 3 hours); V6 (60o C @ 3 hours); V7 (60o C @ 3 hours); V8 (60o C @ 3 hours); V9 (60o C @ 2 hours); V10 (60o C @ 2 hours) and V11 (60o C @ 3 hours). Through parboiling process, the milling and head rice recovery of selected rice varieties significantly increased ( $P < 0.05$ ) from 73.24% to 78.64% and 79.13% to 99.54%, respectively. However, a slight decrease in the whiteness value from 70.56 to 59.70 was observed. Assuming that twenty percent (20%) of the country's rice production in 2013 of 18.4 M MT goes to parboiling, the industry can generate an additional income of about P17 billion, a substantial amount that could contribute in minimizing our rice importation. Establishment of a parboiling plant in strategic locations is recommended to help the country in attaining self-sufficiency in rice.

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## Anti-adipogenic activity of Australian canola meal in murine mesenchymal stem cells

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Obesity is associated with many diseases including cardiovascular diseases, diabetes, atherosclerosis, hypertension and cancer. Potential bioactive compounds from plant extracts may inhibit fat cell (adipocyte) differentiation. Screening of such extracts may contribute to future novel functional food strategies reduce obesity. Canola meal is a waste product left after extraction of the oil and may be a source of potential bioactive compounds which may inhibit fat cell development. In this study, canola meal extracted using a variety of solvents was examined for its ability to suppress adipocyte differentiation in C3H10T1/2 murine mesenchymal stem cells. Accumulation of fat within the C3H10T1/2 cells was measured through Oil Red O staining while levels of the major adipocyte differentiation factor PPAR $\gamma$ , were analysed by immunofluorescence and quantitative polymerase chain reaction (qPCR). Overall extracts of canola meal demonstrated significant inhibition of adipocyte differentiation without cell toxicity with acetone and hexane extracts being the most effective.

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