Effect of soaking on phytic acid and some selected minerals in rice fractions

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ABSTRACT

With the aim to maximise phytic acid removal and minimise losses of dry matter and minerals (Ca, Fe, Zn) in rice, three products (whole kernels and flour milled from white and brown rice; and bran, all from the same batch of variety Kenjian 90-31) were soaked in demineralized water at 10 °C (SDW), NaAc buffer of pH 3.5 at 10 °C (SAB), and 500 U L^{-1} phytase of pH 5.5 at 50 °C (SPS). In whole kernels and flour of white rice, phytic acid removal was 100% by all treatments; losses of dry matter, Ca, Fe, and Zn were 2–5%, 12–63%, 9–10%, and apparent gain of 63–72%, respectively. In whole brown rice, SAB removed 75% phytic acid, and SPS 100% from flour; dry matter, Ca, Fe, and Zn losses were 1–16%, 26–56%, 39–45%, and 23–24%. In rice bran, SPS removed 92% phytic acid, and SAB 50%; dry matter, Ca, Zn, and Fe losses were 20%, 48%, 63%, and apparent gain of 5%, respectively.