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## Influence of parboiling process on free/esterified and bound phenolic compounds, phytosterols and other triterpenic compounds in rice bran

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Rice bran is the most important rice by-product and represents 10% of rice production. Rice bran contains 14-22% oil and is used in diet preparation in several countries. One of the major bioactive components in rice bran oil,  $\gamma$ -oryzanol, is a mixture of ferulic acid esters of triterpene alcohols and sterols. Because of that, the impact of parboiling on the concentration of free and cell wall-bound phenolic compounds, free+esterified and bound sterols and triterpenic alcohols were investigated. As expected, the analysis of free phenolic compounds, determined by HPLC-DAD-TOF-MS, reported the highest amount of phenolics in rice bran from raw rice compared to parboiled sample. The TOF analyzer permitted the identification of different hydroxybenzoic, hydroxycinnamic and catechin derivatives. Bound phenolic compounds were phenolic acid derivatives, some of them in dimeric form (i.e. disanapic and diferulic acids). Contrary to free phenolic determination, the analysis of bound phenolic compounds reported the highest content of phenolic compounds in parboiled rice bran. As expected, oil content was higher in parboiled rice bran than in raw rice bran. The unsaponifiable fraction of rice bran oils was analyzed by GC-qTOF-MS. The highest content of total phytosterol and triterpenic alcohols were found in parboiled rice bran oil. Free+esterified phytosterols and triterpenic alcohols represented the 25-30% of total fraction. In fact, the highest amounts of these compounds are presented in bound form. Sitosterol was the first phytosterol in all samples. These results suggested that raw rice bran is a good ingredient for phenolic compounds enrichment; instead parboiled rice bran is a good source of phytosterols and triterpenic alcohols.

### Biography

Vito Verardo was graduated in February 2004 in Food Science and Technology at University of Bologna. He carried out his PhD studies (2006-2008) at the Department of Food Science of University of Bologna defending his thesis on the determination of bioactive and potentially toxic compounds in food. During and after this period, he spent predoctoral and postdoctoral period in different research centers and food companies. He is author of scientific papers and book chapters mainly focused on the study of lipid oxidation, antioxidants and shelf life of food. He has good level abilities on the main electrophoretic, chromatographic techniques (HPCE-UV-MSD, GC-FID-MSD, HPLC-DAD-FLD-ELSD-MS).

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