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Composition and Regiodistribution of Fatty Acids in Triacylglycerols and Phospholipids from Red and Black Rices

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Regiospecific profiles of fatty acids (FA) of triacylglycerols (TAG) and phospholipids (PL) isolated from red and black rices were investigated. The lipids extracted from red and black rices were separated by thin-layer chromatography (TLC) into eight subfractions, respectively. With a few exceptions, the major lipid components were TAG (76.4–80.5%), free FA (7.2–9.8%), and phospholipids (3.5–3.6%), while hydrocarbons, steryl esters, diacylglycerols (1,3-DAG and 1,2-DAG), and monoacylglycerols were present in minor proportions (0.1–4.1%). The PL components isolated from the two cultivars were phosphatidyl choline (52.3–53.7%), phosphatidyl ethanolamine (22.3–23.1%), phosphatidyl inositol (20.6–21.3%), and others (<3.4%). No significant differences ($P < 0.05$) in FA distribution were found when these cultivars were compared. The principal characteristics of the FA distribution in the TAG and PL were evident in the rices between the two cultivars: unsaturated FA were predominantly located at the *sn*-2 position (77.3–96.8%), while saturated FA primary occupied the *sn*-1 or the *sn*-3 position (35.0–78.7%) in these lipids. The results of this study could provide useful information to both consumers and producers during manufacture of traditional rice foods in Japan.

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