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Antimutagenic Effect and Cytotoxicity to Human Cancer Cell Lines of Colored Potato (*Solanum tuberosum* L.) Extracts

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This study investigated the effects of colored potato extracts on antimutagenic activity and anticancer activity to six human cancer cell lines containing LNCaP prostate cancer cells. Extracts from three colored potato("Daegwan 1-102", "Daegwan 1-104" and "Jasim") and the white potato("Superior") cultivars were used in this study. The ethanol extracts of various all potatoes inhibited the mutagenicities induced by direct mutagen such as 4-NQO and another indirect mutagens of bezo(a)pyrene(BaP), while the extracts of Daegwan cultivars showed higher antimutagenic activity than "Jasim" and "Superior" against to direct or indirect mutagen on both strains of TA98 and TA100. The activity of growth-inhibitory in four potatoes cultivar extracts were screened by SRB method on diverse cancer cells representing different types of cancers. Among the extract of four potatoes, the extract of "Jasim" showed moderate inhibition on proliferation of LNCaP ACHN and MOLT-4F cells and did not inhibit the proliferation of other cancer cells. The extract of "Superior" did not inhibit the proliferation of any tested cancer cell line. The extracts of "Daegwan 1-102 and 1-104" inhibited the proliferation of cancer cells with GI_{50} values ranging from 2.5 to 30μg/mL. From the GI_{50} values, it is clear that LNCaP cells were more sensitive to extracts of colored potato cultivars than other cancer cells. The extract of "Daegwan 1-104" at 30μg/mL were more active and inhibited cell proliferation and induced apoptosis in LNCaP cells.
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Non-destructive Prediction of the Rice Milling Process using NIR Spectra from the Hulled Rice condition

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The purpose of this study is to measure fundamental data required for the prediction of milling ratios, and to develop regression models to predict the milled rice from hulled rice condition. The NIR reflectance spectra were measured in the wavelength region of 400-2500 nm with an NIR spectrophotometer "NIRSystems 6500"(Foss, Silverspring, USA). The software used was WinISI (Infrasoft International, State College, USA). Automatic head rice production & quality checking system used was "SY2000-AHRPQCS" (Ssangyong, Korea). The calibration was made with 1st derivative that spectrum designated was 8nm in interval. The determination coefficient of Hulling recovery ratio was 0.8379 from Modified Partial Least Squares Regression(MPLS) method, Brown/Polished rice ratio 0.6167, Milling recovery ratio 0.6898, Broken rice ratio 0.7998, Hull ratio 0.8236, Rice bran ratio 0.8235, Color selection head rice ratio 0.5939, Color selection brown rice ratio 0.5448, Head rice/Paddy ratio 0.8413, Head rice/Brown ratio 0.7956, Head rice/Polished ratio 0.8874, Broken/Paddy ratio 0.8644, Broken/Brown ratio 0.8927, Broken/Polished ratio was 0.8923.
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