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Chemical composition of starches isolated from wheat, rice, foxtail millet, proso millet, cassava and sweet potato

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Starch is used in the food industry to impart functional properties, and to modify food texture and consistency. Both the amount of starch and its type are greatly critical for the texture of a given product. The chemical properties of starch differ with its source. In recent years, substantial efforts were made to obtain starches from non-conventional sources and to study their physicochemical properties. In this study, wheat flour *(Triticum* spp.), rice (*Oryza sativa*; Bg 357), foxtail millet (*Setaria italic*; ISC 480), proso millet (*Panicum miliaceum; AC 254)*, cassava (*Manihot esculenta*; Kirikawadi) and sweet potato (*Ipomoea batatas*; Wariyapola-red) starches were obtained according to the alkali extraction method. Moisture contents, crude protein, crude fat, crude fiber and ash content were determined and compared. The yield of starch of wheat, rice, foxtail millet, proso millet, cassava and sweet potato were 54.43%, 64.10%, 27.83%52.83%, 54.47% and 40.77%, respectively, on dry weight basis with a high level of purity (>99).This investigation showed that the isolated starches contained 0.43-0.71% crude protein, 0.10-0.14% crude fat, 0.12-0.16% crude fiber, 0.25-0.47% ash and 99.03-99.29% of carbohydrate on dry weight basis. Moisture content of starches ranged from 10.35 to 13.30%. Among the starch sources, rice yielded the highest starch content while foxtail millet contained the lowest starch content. Among the two yams, cassava contained more starch than sweet potato. Compared to root starches, cereal starches contained a higher level of lipid and protein, while root starches contained higher level of moisture and fiber. The study would be useful to better understand the chemical composition of selected starches.

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