Abstract:

Certain indigenous foods commonly consumed by Kenyan vulnerable groups (the malnourished; children under 5 years of age; pregnant and lactating women; malnourished adults in cases of vitamin or mineral deficiencies, TB, diabetes, cancer, AIDS; refugees; orphans the elderly and the disabled) are not yet evaluated for phenolic content and health relevant functionality. The present study was therefore designed to analyze the phenolic content, antioxidant and antidiabetic properties of methanolic extract of raw and traditionally processed food ingredients. The total phenolic contents of the cereals, legumes, oil seeds and vegetables were ranged from 0.41 to 3.00 g/100 g DM. Amaranth grain (Amaranthus cruentus) and drumstick leaves (Moringa oleifera) exhibited significantly higher phenolic content than the other samples. The methanolic extract of the investigated samples showed promising levels of DPPH radical scavenging activity (81–89%); ferric reducing/antioxidant power (FRAP, 44–744 mmolL−1 Fe[II]/g extract DM); α-amylase (10–45%) and α-glucosidase (13–80%) inhibition activities. The food ingredients with high phenolic content exhibited relatively higher antioxidant and antidiabetic activities. The results indicate that soaking + cooking is the mild processing method to preserve the phenolic compounds and their health relevant functionality in the presently investigated cereal, legume and oil grains, while cooking is suitable treatment for vegetables.