

Extraction and Characterization of Mucilage Extracted from Different Plant Sources

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Plant mucilage are hydrocolloids; high molecular weight, hydrophilic, polymeric compounds that can modify the rheology of a solution due to their highly branched structure. Plant mucilage are widely applied in a variety of fields based on their physico-chemical properties. This study reports on the extraction and characterization of mucilaginous materials from various plant sources in Sri Lanka, which imparts different food applications. Mucilage materials from Dawul kurundu leaves (*Neolitsea cassia*) (DKL), Kumbuk leaves (*Terminalia arjuna*) (KL), Kahipiththan leaves (*Cyclea peltata*) (KPL), Hibiscus leaves (*Hibiscus sabdariffa*) (HL), Fenugreek seed (*Trigonella foenumgraecum*) (FS), Chia seed (*Salvia hispanica* L.) (CS), Okra fruit (*Abelmoschus esculentus* L.) (OF) and Aloe vera leaves (*Aloe barbadensis miller*) (AVL) were extracted either by mashing manually with distilled water or by soaking in distilled water for a specific period of time followed by manual mashing. Physic-chemical properties such as solubility, pH, Total Soluble Solid (TSS), moisture, loss of drying and viscosity of the extracted plant mucilage were analyzed. According to the results, all mucilage materials were soluble in both cold and lukewarm water, but showed low solubility in organic solvents such as ethanol and acetone. Mucilage extracted from KPL (4.10) and CS (4.17) had significantly lower ($p < 0.05$) pH values than the others resembling their acidic nature. FS (64.950%) and CS (64.933%) showed the lowest ($p < 0.05$) moisture content while CS showed the highest TSS (9.53%) and the lowest loss on drying (82.35%) ($p < 0.05$) among the eight mucilage samples. CS mucilage had the highest viscosity that is greater than 25000. Controlling moisture content of plant mucilage materials helps to achieve the desired thickness, stickiness of various foods such as sauces, gel or confections. The TSS of plant mucilage influences the thickness, viscosity and texture of food such as sauces. Thus, these findings hold promise for diverse applications in pharmaceuticals, food, agricultural, cosmetics and industrial sectors.

Keywords: *Aloe barbadensis miller*; Plant mucilage extraction; Solubility; *Trigonella foenumgraecum*; Viscosity