EXTRACTION AND SEDIMENTATION OF TARO STARCH (Colocasia esculenta L. Schott) USING NATURAL FLOCCULANTS

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ABSTRACT

An extraction and sedimentation method using solutions of plant mucilages as flocculants, has been developed for Taro starch. Taro has very small granules that hardly flocculate. Flocculant solutions came from ‘cadillo’ (Triumfetta lappula) and ‘guásimo’ (Guazuma ulmifolia). Experimental factors considered were amount of flocculant solution, agitation speed, and time of agitation, and their effect on the response variables sedimentation rate and recovery of starch. Also, some physical, chemical, functional and rheological properties of the starch with and without flocculants solutions, were measured. Starch size and starch:flocculant agglomerates were measured by SEM. Water absorption and solubility, and swelling power indexes (WAI, WSI, SI), were determined, for starches with and without flocculants. Results showed that sedimentation speed increased when a ‘guasimo’ solution and agitation at 120 rpm, were used (p < 0.05). By using flocculants, sedimentation speed and starch recovery increased by 30% and 55%, respectively. Starch granule diameter ranged from 1 to 6 μm. Initial starch gelatinization temperature was not affected by flocculants, and the highest viscosity was observed when ‘guasimo’ was used. Similarly, WAI, WSI and SI for starch with and without flocculants, were not significantly affected; although, the ‘guasimo’ flocculate showed the closest values to native starch. These sedimentation, functional and rheological characteristics of the native starch with or without flocculants, had shown potential in the food industry as thickeners and texture conditioners; these without the need for separating the flocculant. Also, these findings point out alternatives uses for indigenous products that so far had little added value.

(Summary of 249 words).