



201/B

Determination of the extractability of *Tamarindus indica* (Tamarind) seed gum using different extraction methods

Y.S.M. Senarathna*, S.B. Navaratne and I. Wickramasinghe

Department of Food Science and Technology, Faculty of Applied Sciences, University of Sri Jayewardenepura, Nugegoda, Sri Lanka

Tamarindus indica L. (Tamarind) is an evergreen fruit tree that is extensively grown in Sri Lanka. Tamarind pulp is widely consumed as a spice and flavouring agent in which the seed is a byproduct and wasted without further production. As the seed contains 65% of gum, which can be used as gelling, stabilizing, thickening and binding agent, it is important to study the properties of tamarind seed gum along with its extractability and potential applications. Thus, this study was conducted to determine the extractability of tamarind seed gum using selected water and solvent-based extraction methods to apply it in the food industry. For the gum extraction from seeds, three extraction methods as water extraction, hot water extraction and acidic extraction (pH 3.5) were conducted for tamarind kernel powder which accounts for 70-75% of the seed, followed by ethanolic precipitation. The extractability of tamarind seed gum from each of these methods was calculated in terms of the gum yield and analyzed by ANOVA in Minitab 16 software at a significance of 0.05. According to the results of the study, the lowest yield and extractability (17.60 ± 0.11 and $27.08 \pm 0.16\%$, respectively) were obtained from the gum extracted by the water extraction method. Moreover, the extractions conducted using hot water and acidic medium resulted in the yield of 40.04 ± 0.17 , $46.12 \pm 0.32\%$ and the extractability of 61.60 ± 0.25 , $70.95 \pm 0.50\%$, respectively. The findings reveal that acidic extraction is an appropriate method to extract tamarind seed gum with the highest extractability. Further scientific studies should be conducted to identify the properties of tamarind seed gum beneficial in food-based applications such as binding, thickening and gelling properties to bring it to the Sri Lankan food industry without wasting another valuable resource in Sri Lanka.

Keywords: Tamarind, extractability, gum extraction

Email: madus@sci.sjp.ac.lk