

Protein Extraction of Momordica Charantia Seed Assisted by Ultrasound Extraction

Abstract

The Momordica charantia is a tropical and subtropical plant with high nutritional value that has been implemented in traditional folk medicine as an antifungal, antimutagenic, Anthelmintic, anticancer, antifertility, and antidiabetic agent. The seeds contain rich source of antifungal protein that can be explored to be used against various fungus disease. In this study, the antifungal protein was extracted by using ultrasound assisted extraction (UAE) via one-factor-at-a-time (OFAT) technique with following the parameter sodium chloride, NaCl concentration (0.5, 1.0, 1.5, 2.0 and 2.5 M), solute ratio (0.1, 0.2, 0.3, 0.4 and 0.5 g/mL) and extraction time (4, 6, 8, 10 and 12 min). After extraction, the extract was further centrifuged and assayed by standard Bradford method before analysing the protein content at 595 nm. The result shows the optimum conditions for protein content is 6.445 mg/mL achieved after treatment with 1.5 M NaCl, 1w;10v (g/mL) in 10 min with p-value < 0.01 from each of parameter. Results showed that Momordica charantia seed had desired protein source with optimal parameter and promising antifungal bioresources with prospective applications in food and other industries.

Keywords

Momordica charantia seed extract; One factor at a time (OFAT); Ultrasound assisted extraction