

## Effect of Initial pH and Fermentation Duration on Total Phenolic Content and Antioxidant Activity of Carob Kibble Fermented with *Saccharomyces cerevisiae*

**Authors :** Thi Huong Vu, Haelee Fenton, Thi Huong Tra Nguyen, Gary Dykes

**Abstract :** In the present study, a submerged fermentation of carob kibble with *Saccharomyces cerevisiae* (*S. cerevisiae*) was performed. The total phenolic content and antioxidant activity in fermented carob kibble were determined by Folin-Ciocalteu method and scavenging capacity using 2,2-diphenyl-1-picrylhydrazyl (DPPH) and 2,2'-azinobis-(3-ethylbenzothiazoline-6-sulfonic acid (ABTS). The study showed that *S. cerevisiae* improved total phenolic content by 45 % and 50 % in acetone and water extracts respectively. Similarly, the antioxidant capacity of water extracts increased by 25 % and 41%, while acetone extracts indicated by 70% and 80% in DPPH and ABTS respectively. It is also found that initial pH 7.0 was more effective in improvement of total phenolic content and antioxidant activity. The efficiency of treatment was recorded at 15 h. This report suggested that submerged fermentation with *S. cerevisiae* is a potential and cost effective manner to further increase bioactive compounds in carob kibble, which are in use for food, cosmetic and pharmaceutical industries.

**Keywords :** antioxidant activity, carob kibble, *saccharomyces cerevisiae*, submerged fermentation, total phenolics

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