

Indigenous *Saccharomyces cerevisiae* Strains from Coconut Inflorescence Sap: Characterization and Use in Coconut Wine Fermentation

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ABSTRACT

This study isolated Saccharomyces cerevisiae strains from coconut inflorescence sap and evaluated their suitability for coconut wine fermentation. Twenty-six S. cerevisiae strains were isolated from coconut inflorescence sap in Thailand. They were identified based on their morphological, physiological, and biochemical characteristics, as well as by sequence analysis of the D1/D2 region of the large-subunit ribosomal RNA gene. All 26 isolates grew at 37°C and 11 strains (42%) produced ethanol at more than 50 g/L from 180 g/L glucose containing medium at 30°C. Sensory evaluation using a nine-point hedonic scale of the coconut wines fermented by five selected yeast strains from 23°Brix coconut juice showed no significant differences ($p = > 0.05$) in the color and clarity except for the wine fermented by strain NL010, whose flavor profile and overall acceptance were rated exceptionally high. Thus, coconut inflorescence sap is a potential source of autochthonous S. cerevisiae strains for coconut wine fermentation.

Keywords: *Saccharomyces cerevisiae*, Coconut inflorescence sap, Wine fermenting, Ethanol

INTRODUCTION

Coconut inflorescence sap is the exudate obtained from the unopened inflorescence of coconut palm (*Cocos nucifera*). It is a yellowish brown, clear liquid of pH 7.0 that contains 12-15% (w/w) sucrose; approximately 0.23% (w/w) protein; 0.02% (w/w) fat; trace amounts of glucose, fructose, maltose, and raffinose; and is rich in Na and K ions (Kalaiyarasi et al.,