

The Common and Unique Microbiota in Sabah's Traditional Rice Wine Starter Cultures (Sasad)

ABSTRACT

Rice wine is an alcoholic beverage produced through the fermentation of cereal grains, mainly rice, with microbial starters consisting of fungi and bacteria. However, the microbes in the rice wine starter cultures have never been documented comprehensively except for a few studies that looked into culturable microbes. Hence, their exact core microbiota contents, especially those unculturable microbes remained unknown. Therefore, this research aimed to identify the fungal and bacterial communities in sasad through ribosomal amplicon-based next-generation sequencing and analysis that captured both the culturable and unculturable microbiota. The results showed that two fungal phyla (Mucoromycota and Ascomycota) with five genera (*Mucor*, *Rhizopus*, *Saccharomycopsis*, *Wickerhamomyces*, and *Kodamaea*) and two bacterial phyla (Proteobacteria and Firmicutes) with 10 genera (*Kosakonia*, *Weissella*, *Enterobacter*, *Lactococcus*, *Pseudomonas*, *Bacillus*, *Chromobacterium*, *Paludibacterium*, *Enterococcus*, and *Gluconobacter*) were identified as the core microbiota (relative abundance > 1.00%) in the sasad samples. Some of these microbes have been reported in other starter cultures, but some are unique to the sasad (*Chromobacterium* and *Paludibacterium*). Hence, this research provides the first comprehensive report on the microbes in sasad and provides important insights into the potential roles of core microbiota. These data may be used to facilitate the development of starter cultures with defined microbial compositions for the consistent production of safe and high-quality rice wines in the future. Keywords: Microbiota; rice wine; starter culture