

ABSTRACT

Maria Elisabeth Nadia Dwi Adi Sasongko, 24020220130053, "Screening and Identification of Bacterial and Khamir Isolates from Indigenous Fermented Glutinous Rice for the Synthesis of Flavour Ingredient Fragrance". Under the guidance of Endang Kusdiyantini and Fitri Setiyoningrum.

2-Phenetyethanol (2-PE) is an organic volatile compound that is widely used in the food, cosmetic, and fragrance industries. Organic volatile compounds are more natural and sustainable than synthetic compounds, increasing the demand for organic volatile compounds. Screening and exploration aimed to identify potential microorganisms capable of producing natural volatile compounds. Microbial identification was carried out macroscopically and microscopically from spontaneous sticky rice fermentation, followed by qualitative screening for aroma compounds using sensory evaluation and Gas Chromatography-Mass Spectrometry (GC-MS). Selected isolates were then molecularly identified through 16S rRNA sequencing to determine their species and optimise precursor concentration and fermentation time to increase volatile compound production. The results of identification and screening of microorganisms obtained 8 bacteria and 2 yeasts that showed potential in synthesising aromatic volatile compounds. *Enterobacter cloacae* strain NKF1.6 showed potential in synthesising aromatic volatile compounds from L-Phenylalanine precursor. The highest concentration of 2-PE was produced from a precursor concentration of 7 grams with a fermentation time of 9 days with a 2-PE concentration of 63.476 µg/L. In addition to 2-PE, the production of Ethanone, 1-(2-furanyl)- or 2-Acetylfuran which has a sweet, nutty, and caramel-like aroma and 1-(3H-Imidazol-4-yl)-ethanone or 4-Acetylimidazole which has a sweet caramel-like aroma were detected from all samples.

Keyword: *bioflavour, fragrances, molecular identification, screening*