Isolation of Acetic Acid Bacteria and Its Utilization For Vinegar Fermentation From Waste Fruit

Iman Santoso, author

Abstrak

Among twenty one isolates, obtained from "aren" (Aretga Rinnata) vinegar, 10 isolates were identified as acetic acid bacteria, belong to genus Acetobacter. Isolates no. 12 was used as inoculum for vinegar fermentation. Saccharomyces cerevisiae (Y-17) was provided by University of Indonesia Culture Collection.

Two hundred fifty grams of pineapple (Ananas comosus) peel was boiled for 1.5 hours and then filtered to obtain the extract. Aquadest was added into substrate to obtain 1 litre of extract and then added with 15% or 20% castor sugar. Substrate was sterilised at 121°C for 10 minutes.

Fermentation was carried out in syrup bottle containing 540 ml substrate. Approximately 60 ml of starter containing mix-culture with diffrent ratio of 1 day old S. cer visiae (106 cfu/ml) and 5 days old Acetobacter sp. no.12 {10 cfu/ml) was inoculated into the substrate. The ratio of yeast cells to bacteria were follow: (1:1); (2:1); (3:1} or (4:1). Fermentation was set up in room temperature (3O -- 32°C for 1 month. The concentration of acetic acid was titrated with standarised NaOH.

Result of this study showed that substrate with 15% sugar yielded (1.1 - 1.4)% acetic acid. The average acetic acid concentration from substrate with 20% sugar were (0.44 - 0.89%). It was concluded that substrate with 15% sugar gave higher concentration and the best ratio of starter was (1 : 1).