

**RESEARCH AND DEVELOPMENT FINAL PROJECT
“VINRANGE” AROMATIC ORGANIC ORANGE ZEST
VINEGAR WITH DOUBLE STEPS FERMENTATION**



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INTERNATIONAL MASTER GOURMET ACADEMY
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**RESEARCH AND DEVELOPMENT NEW PRODUCT
FINAL REPORT**

**Vinrange (Aromatic Organic Orange Zest Vinegar with Double Steps
Fermentation)**

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EXECUTIVE SUMMARY

Vinrange is a vinegar product that is made from orange peel. Vinegar is chosen because of its use in the culinary industry. Apple cider vinegar, red wine vinegar, white wine vinegar, and distilled vinegar are the example of vinegar available in the market for the meantime. Vinrange is a new kind of vinegar made from the rind and the pith of the orange. Vinrange itself priced at IDR 41,000 each bottle (450 ml) which is still in the price range of its competitors.

Making vinegar requires two important processes. They are alcoholic fermentation and acetic acid fermentation. The alcoholic fermentation starts by breaking down the carbohydrate into ethyl alcohol and CO₂ as a byproduct in an anaerobic condition, this process is called glycolysis. The acetic acid fermentation is a process of making acetic acid by forming acetaldehyde from ethanol called alcohol dehydrogenase. Then, acetaldehyde will be hydrogenated to form hydrated aldehyde. The hydrated aldehyde then made into acetic acid, this process is called acetaldehyde dehydrogenase.

The vinegar despite its use in the culinary industry has another use in daily activities. The vinegar could be used to clean the spot in faucet and sink. Apple cider vinegar is used as a healthy drink to reduce the risk of heart disease and hypertension.

The orange peel is chosen because of its health benefits. It contains vitamin and antioxidants. Vitamin C is the highest amount of vitamin could be found in the orange. The antioxidants found in the orange including flavonoids and carotenoids are resilient substance against free radical. Vinrange contains as much as 44.25% vitamin C and 45.04% of antioxidant. These are the good reasons for making vinegar out of orange peel because of the health benefits.

Keywords: fermentation, healthy, orange peel, vinegar

PLAGIARISM STATEMENT

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Surabaya, 19 August 2019

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