

Technology of Refermentation to Increase Quality of Coffee Beans

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Introduction

In our study, coffee bean refermentation technology were used to improve the quality of coffee beans. The microreactor is equipped during fermentation process with temperature control, stirring speed, and the numbers of starter added.

No.	Compound
1	Acetic acid
2	Acetic acid, ethyl ester
3	Acetic acid, methyl ester
4	Acetone
5	2-Propanone
6	2-Butanone
7	2-Pentanone
8	2-Hexanone
9	2-Heptanone
10	2-Octanone
11	2-Nonanone
12	2-Decanone
13	2-Undecanone
14	2-Dodecanone
15	2-Tridecanone
16	2-Tetradecanone
17	2-Pentadecanone
18	2-Hexadecanone
19	2-Heptadecanone
20	2-Octadecanone
21	2-Nonadecanone
22	2-Eicosanone
23	2-Hydroxyacetone
24	2-Hydroxybutanone
25	2-Hydroxyhexanone
26	2-Hydroxyoctanone
27	2-Hydroxydecanone
28	2-Hydroxydodecanone
29	2-Hydroxytetradecanone
30	2-Hydroxyhexadecanone
31	2-Hydroxyoctadecanone
32	2-Hydroxyeicosanone
33	2-Hydroxydocosanone
34	2-Hydroxytetracosanone
35	2-Hydroxyhexacosanone
36	2-Hydroxyoctacosanone
37	2-Hydroxytriacontanone
38	2-Hydroxytriacontanone
39	2-Hydroxytriacontanone
40	2-Hydroxytriacontanone
41	2-Hydroxytriacontanone
42	2-Hydroxytriacontanone
43	2-Hydroxytriacontanone
44	2-Hydroxytriacontanone
45	2-Hydroxytriacontanone
46	2-Hydroxytriacontanone
47	2-Hydroxytriacontanone
48	2-Hydroxytriacontanone
49	2-Hydroxytriacontanone
50	2-Hydroxytriacontanone

Table 1: List of identified volatile compound by GC-MS



Figure 3: Microfermentor

Materials/Methods

The coffee used is Canephora coffee. The refermentation technology is done by making the condition of the coffee beans the same as before being dried, which has a water content of 50-60%. After that, it is fermented using starter for 12 hours in microfermentor

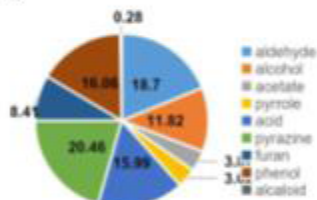


Figure 2: Distribution percentage of each volatile compound (12 hours)

Results/Discussion

The identified volatile compounds can be grouped into 9 groups, acids, pyrazine, furans, phenols, aldehydes, alcohol, acetate, pyrrole and alkaloids. Based on the nine groups of volatile compounds, there are five groups that have a high percent area, namely acids, alcohol, pyrazine, phenol and aldehyde

Conclusion/Perspectives

Technology of refermentation can increase quality of coffee bean. From organoleptic test, this technology can increase score 5 point to be specialty coffee (>80). In addition, some compounds decrease such as glucose dropped to 6.9%, caffeine to 1.4%, and protein to 12.89%. However, volatile compound aroma increase such as acid, alcohol, aldehyde, and acetate group that contributed to give the pleasant aroma

References:

Afriliana, asmak. 2019. Technology of Refermentation Coffee Beans. novel techniques in nutrition and food sciences, Vol 3.