

ABSTRAK

PENGARUH PENGGUNAAN KOPI SEBAGAI PENGHILANG BAU AMONIA DIUKUR DENGAN MENGGUNAKAN *ELECTRONIC NOSE*

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Pengaruh penambahan bubuk kopi terhadap perubahan aroma amonia telah dapat diukur dengan menggunakan *electronic nose*. *Electronic nose* yang terdiri dari 8 sensor gas logam oksida dan dikombinasikan dengan sistem pengenalan pola *principal component analysis* (PCA) telah dapat mengukur pengaruh aroma kopi terhadap perubahan aroma amonia. Tujuan dari penelitian ini adalah mengukur pengaruh aroma kopi dengan melakukan ekstraksi ciri data hasil keluaran respon *e-nose*. Penelitian dilakukan selama empat hari, stu harinya diuji sebanyak dua kali yaitu jam 07:00 dan 19:00. Tabung sampel dibagi menjadi tiga yaitu amonia, kopi dan kopi amonia. Konsentrasi amonia yang ditambahkan sebanyak 25% dan volume 100 mikroliter dan bubuk kopi sebanyak 3 gram tiap tabungnya. Aroma yang diperoleh dari hasil hasil keluaran respon *e-nose* berupa tegangan terukur yang sebanding dengan konsentrasi gas yang dihasilkan selama *sampling*. Hasil analisis PCA membuktikan terjadinya perubahan aroma sampel kopi bercampur amonia menuju aroma kopi. Akurasi dari hasil analisis klasifikasi PCA adalah 94.5% dengan menjumlahkan data PC1 dan PC2.

Kata kunci: aroma, *electronic nose*, kopi, amonia, *principal component analysis*

ABSTRACT

EFFECT OF COFFEE ADDITION FOR AMMONIA SMELL REMOVAL MEASURED USING ELECTRONIC NOSE

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The effect of adding coffee powder to changes in ammonia aroma can be measured using electronic nose. Electronic nose which consists of 8 metal oxide gas sensors and combined with a principal component analysis (PCA) pattern recognition system has been able to identify the effect of coffee aroma on ammonia aroma changes. The purpose of this study is to measure the effect of the aroma of coffee by performing feature extraction of the output data of the e-nose response. The study was conducted for four days, then the day was tested twice, namely at 07:00 and 19:00. The sample tube was divided into three, namely ammonia, coffee and ammonia coffee. Ammonia concentration is added as much as 25% and the volume of 100 microliters and coffee powder is 3 grams per tube. The aroma obtained from the results of the e-nose response results in the form of a measured voltage that is proportional to the concentration of gas produced during sampling. The results of PCA analysis prove the change in aroma of coffee samples mixed with ammonia to the aroma of coffee. The accuracy of the PCA classification analysis results is 94.5% by summing the data of PC1 and PC2.

Keywords: aroma, e-nose, coffee, ammonia, Principal component analysis