MILK TYPE CLASSIFICATION:
A CASE BASED REASONING USING ELECTRONIC NOSE (E-NOSE)

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ABSTRACT

Nowadays, there various fresh milk and processed milk is being produced from various diary industries in Malaysia. However, the authenticities of the milk freshness are facing difficulties in order to detect unless they are tested in dedicated well-conditioned laboratory. Instead of chemical analysis method for milk freshness detection, there is an electronic device can be used to complement the method. As the milk has physical properties, and very similar in odor to each other, Electronic Nose (E-Nose), a combination of an array of gas sensors with pattern recognition is one of the important instruments that can be used to classify them. E-Nose was developed through a combination of hardware and software designed based on the relevance of the material being tested and some of the factors that improve the effectiveness of the E-Nose. Hardware development of E-Nose included chamber building process and the electrical wiring of Arduino Mega Board and the components. Software development of E-Nose included Arduino software, Microsoft Excel, Matlab, Solidwork and Proteus ISIS. By the end of this project, the E-Nose was able to intelligently classify the dairy product based on the odor profile by applying Intelligent Classification using Case-Based Reasoning Method with 100% rate of accuracy, specificity and specificity.