Application of PZ-Olfactory Biosensor on Food Flavor Analysis

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ABSTRACT

An Olfactory Biosensor was developed . It could differeniate the volatile odorants . The data was analyzed by running all of parameters on multivariate statistics computer software program to execute numerical taxonomy . The results have showed that samples could classify into several odorants . The members of each group were similar to each other in humn sense to odor . The attribution of each group demonstrated that the olfactory biosensor had the capability of recognition . The response of olfactory biosensor to odorant such as ethyl butyrate , ethyl octanoate , ethyl hexanoate , ethyl heptanoate , ethyl propionate , ethyl acetate , cis-3-hexanyl acetate , trans 2-hexenel , 3-hexanol , 2-nonanone , 4- methyl , 2-pentanoate , 2-decaneone and 2-undecaneone showed a good correlation to human threshold values . Furthermore , the PCA results showed a linrar relationship between the concentration of aromatic flavor and the response of olfactory biosensor . Thus , the olfactory biosensor posessed not only a capability of recognition , but also a capability of quantification . The olfactory biosensor was used to measure the headspace gas of chinese tea . It was found that the sixgonal profiles could distingusih the different kinds of tea and could also discriminate the grades of tea . With the additional measurement on conductivity , electromotive potential , and color difference meter , the quality of tea would quantified more precisely . In conclusion , an effective and rapid method was developed to analyze odorants and to quality of tea by using the olfactory biosensor . Key words: olfactory biosensor , human sense , PCA , threshold value , aromatic flavor , sixgonal profiles .

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