

Temperature Dependence of Bitter Taste and Output Characteristics of Taste Sensor

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The purpose of this study is to reproduce the exact taste that people feel, without eliminating the temperature dependence of a multichannel taste sensor. Four taste substances, NaCl (salty), HCl (sour), quinine-HCl (bitter) and monosodium glutamate (*umami*) were evaluated in terms of temperature dependence by humans. In the case of quinine-HCl, the strength of bitterness became weak at higher temperature. On the other hand, the four taste substances were measured in terms of temperature dependence using a multichannel taste sensor. The experiment on temperature dependence was carried out to improve the measurement device such that the electrode is not affected by temperature. Results showed that the response potential of quinine-HCl decreased with increasing temperature. It is suggested that an increase in temperature causes the weakening of hydrophobic bonds, and the adsorption of quinine-HCl to the membrane becomes weak. The results confirmed the temperature dependence of quinine-HCl and matched the taste evaluation results.

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