

Evaluation of the Taste of Tea with Different Degrees of Fermentation Using a Taste Sensing System

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From a health viewpoint, the number of persons who begin to drink tea is increasing yearly. There are over 500 traditional medicine books and papers describing the usefulness of tea for health, medicine, and pharmacy purposes in China. Tea is a type of beverage that humans prefer because of its color, aroma, and taste. Thus, the value of tea is determined on the basis of a comprehensive human sense. The senses of sight, hearing, and touch are used to perceive such single physical quantities as light, sound waves, and pressure (or temperature), respectively, whereas the senses of taste and smell are used to perceive chemical quantities derived from many types of chemical substances. Therefore, there is difficulty in developing sensors for taste and smell. For this reason, sensory tests to evaluate the taste and smell of tea have been used although they are subjective. Most types of tea are made from the same plant but with different fermentation processes. In this work, using a taste sensing system TS-5000Z that has been successfully used for evaluating the taste of various foodstuffs, first, we evaluated the effects of fermentation, from fresh leaves, withering leaves, and rolling leaves, on the taste of tea. We found that the astringency level and umami taste level are decreased, whereas the bitterness level is increased with the degree of fermentation. Next, as an experiment to obtain actual proof, we evaluated the differences in the tastes of green tea, oolong tea, black tea, and postfermented tea, which were made with different degrees of fermentation. The result shows that it is possible to distinguish the differences in these teas. All these results show the possibility that the taste sensing system can be used in the quality control of tea fermentation.

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