Study on the Flavor in Meat Soup Stock

(畜肉だしの風味に関する研究)

Abstract

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Meat soup stock is highly appreciated as a base for savory dishes all over the world due to its desirable meaty flavor profile. Taste compounds in the soup stocks of various kinds of meats have already been investigated. However, there has only been limited research on the aroma-active compounds in the meat soup stock. Therefore, the aim of this present study was to identify the most aroma-active compounds in chicken soup stock, clear pork stock, and beef extract and to examine sensory interactions between aroma compounds and taste compounds in the meat soup stock.

Due to its desirable meaty flavor profile, chicken soup stock is commonly used as a base for savory dishes all over the world. Aroma extract dilution analysis (AEDA) was performed on an extract prepared from chicken soup stock. On the basis of high flavor dilution (FD) factors, methylpyrazine, 2-ethyl-4-methylthiazole, 3-(methylthio)propanal, and (*E,E*)-2,4-decadienal were suggested as primary aroma compounds of chicken soup stock. And omission experiments of the identified aroma-active compounds revealed the main flavor profile of each compound.

The clear type of pork stock is widely used as a base for noodle soup and stir fried dishes in Southeast Asia. The analysis of clear type of pork stock in the same way above led to the identification of acetol, octanoic acid, δ-decalactone, and decanoic acid as the main active compounds contributing to the aroma of pork stock, and showed main flavor profile of each compound.

Beef extract is highly appreciated as a base for many commercial food products all over the world. The analysis of the most popular beef extract in the world (Bordon; JBS S/A, Brazil) in the same way above led to the identification of 2, 3, 5-trimethyl pyrazine, 1-octen-3-ol, 3-methylbutanoic acid, and 4-hydroxy-2,5-dimethyl-3(*2H*)-furanone as the main active

compounds contributing to the aroma of beef extract, and showed main flavor profile of each compound.

To study interactions of taste compounds with aroma compounds in chicken soup stock, sensory comparison between a complete mixture of aroma and taste compounds of chicken soup stock and chicken soup stock aroma solution was performed. Sensory aroma intensities of the complete mixture of aroma and taste compounds were found to be strongly enhanced compared to chicken soup stock aroma solution. This indicated that chicken soup stock aroma was enhanced by taste compounds of chicken soup stock. Moreover, the following omission experiment showed that chicken soup stock aroma could significantly be enhanced by the addition of Glu (Glutamic acid) and IMP (Disodium 5'-inosinate).

These findings of key aroma compounds and aroma enhancing taste compounds will greatly contribute to the scientific research for "deliciousness" of meat soup stocks.