

Taste Behavior of Ornithyltaurine, a Salty Peptide, and an Attempt to Synthesis of a New NaCl Substitute

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Ornithyltaurine · hydrochloride (OTA · HCl) produce a good saltiness. Last year, a convenient synthesis of OTA was developed and we can obtain pure OTA easily. The product, which was almost tasteless by itself, produced a good saltiness without Na⁺ in the presence of HCl. The best quality of saltiness was obtained by adding of 1.2 equiv. of HCl to the OTA solutions. The OTA · 1.2HCl was equally salty to NaCl on a molar basis and also had an enhancing effect on saltiness of NaCl. The intake of Na⁺ could be cut by 95% in a model system by using OTA · 1.2HCl. OTA produced a variety of tastes by a kind of acids for neutralization. A good saltiness similar to OTA · HCl was produced by combinations of inorganic acids and OTA. And combinations of organic acids with big molecular weight produced TNS (Taste of Neutral Salt) and *Umami* taste as well as saltiness. Especially, OTA · Glu produced a favorable taste mixed OTA · HCl like saltiness with Glu · Na like *Umami*. OTA · 1.1Glu was the optimum condition of the taste, but the *Umami* was much stronger than the saltiness. OTA · 0.75HCl · 0.25Glu produced an excellent quality of taste containing *Umami* and saltiness, and the taste was almost the same as that of solutions containing 85.6 mM (0.5%) of NaCl and 14.7 mM (0.25%) of Glu · Na. In this model system, the intake of Na⁺ from not only NaCl but also Glu · Na could be cut completely using OTA · 0.75HCl · 0.25Glu. To develop more effective salty compound, we searched a compound which can enhance tastes. When amino acids, i.e., Ala, Orn, and Glu with sweetness, TNS and *Umami*, respectively, introduced to the 2-NH₂ on D-Glucosamine, each taste were remained and the sweetness and TNS were enhanced. The sweetness and TNS were much enhanced by introducing Ala and Orn to 6-OH and 2-NH₂ on D-Glucosamine. These sugar-amino acid complex has an enhancing effect of taste of introduced amino acid(s) and we can expect to develop an effective salty compound using sugar-amino acids (or peptides) complex.