Differences in salivary α-amylase levels among women with different taste sensitivities

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Saliva is the main component of taste receptor cells external environment, and consequently it may have a decisive role in taste perception. Taste sensitivity varies among different individuals. Sensitivity to the compound n-6-propylthiouracil (PROP) has been considerably studied and besides the known influence of genetic background, the contribution of perireceptor environment is not completely clear yet. Salivary α-amylase (one of the main proteins of saliva) is involved in carbohydrate digestion and its enzymatic activity may change the levels of sugars present in the mouth, influencing food perception. To evaluate differences in salivary total protein content and α-amylase activity and expression among individuals with different PROP taste sensitivities.

Sixty seven female women (18-30 years old) were classified in one of the three groups of taste sensitivity (non-taster, medium-taster or super-taster), according to the perceived intensity for PROP, using Labeled Magnitude Scales. Saliva was collected without stimulation. Flow rate was calculated by dividing total volume for the 5 minutes collection. Bradford method was used for total protein assessment. Dinitrosalicylic acid assay was used for measuring the starch-hydrolyzing activity of salivary α-amylase, while the expression of this enzyme was evaluated by Wester blot. 20,9% of the subjects were classified as non-taters. The three groups presented similar saliva flow rates and total protein content was not significantly different although a tendency for lower protein concentration in medium-tasters individuals was observed. Salivary α-amylase activity (U/min) was higher in super-tasters ($P<0,05$). Salivary α-amylase activity (U/min) was higher in super-tasters ($P<0,05$) without any significant differences in expression. In women individual differences in saliva composition can contribute to the different taste sensitivity. One of the differences appears to be α-amylase enzymatic activity. The reason for this deserves to be elucidated, as well as the potential involvement of others salivary proteins.