

## **Structural Investigation of Cyclamic Acid and Related Cyclamates**

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There exist extensive studies on structure-taste relationship for the artificial sweetening agents, like sucralose (600 times sweeter than sucrose), saccharin (300), acesulfame-K (200) aspartame (180), and cyclamates (30). In order to perceive the sweetness, molecules must activate receptor sites in taste-bud proteins on the tongue. The activation is believed to take place when a molecule of suitable shape has a characteristic functional distribution. According to some theories, there are three essential structural components of a sweetener molecule, oriented in a triangular fashion. More elaborated theories on sweetness are given in an overview [1].

Because the shape of the molecule with the potential sweetness is important and the X-ray structural data for cyclamic acid (cyclohexylsulfamic acid) and cyclamates are not available, the following crystal structures were determined: cyclamic acid, sodium cyclamate, potassium cyclamate, ammonium cyclamate, rubidium cyclamate, caesium cyclamate, tetraethylammonium cyclamate, tetrapropylammonium cyclamate, tetrapentylammonium cyclamate and guanidinium cyclamate.

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[1] Ellis J.W., *J. Chem. Educ.*, 1995, **72**, 671-675.

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