Taste preference thresholds of black-and-white ruffed lemurs

MSc Project by Sandra Nicklasson[1]
Supervisor: Matthias Laska

Linköping University
expanding reality

Kolmården

Background

Comparative studies of taste perception are an important tool for studying the mechanisms underlying the evolution of the sense of taste, as the taste perception of a species is thought to be linked to its feeding ecology.

The black-and-white ruffed lemur is one of the most frugivorous primate species, making it a particularly interesting study species for sweet taste perception

Aim

The aim of the study was to determine the taste preference threshold of the black-and-white ruffed lemurs for 9 substances tasting sweet to humans

Discussion and Conclusions

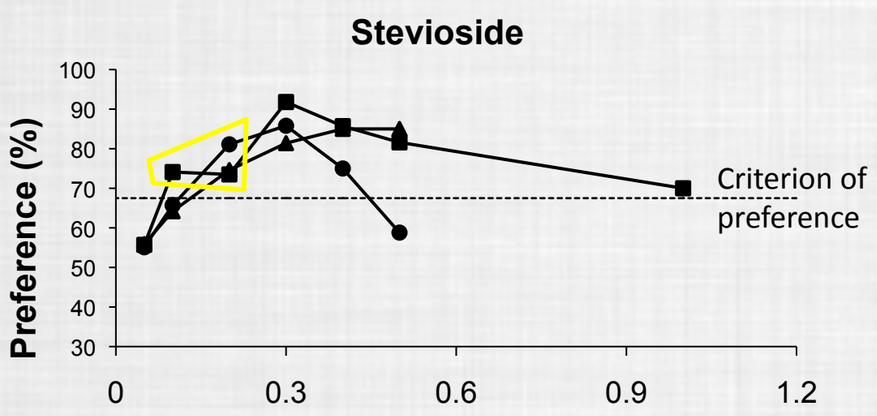
- The lemurs **preferred 8 of the 9** tested substances, **including stevioside and rebaudioside A**

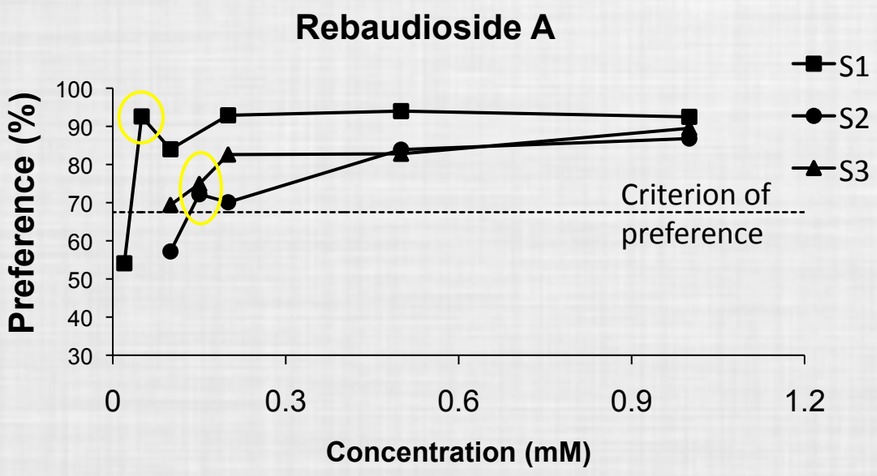
- **Saccharin was the only rejected substance**. L-alanine, and stevioside were non-preferred at some concentrations above the threshold value
  - These three substances have a bitter side taste for humans, thus it is **possible that the lemurs are particularly sensitive towards bitter taste**

Results

Taste preference thresholds (in mM) of three primate species to 7 of the tested substances. All human and spider monkey values are from the literature

	Glycine	L-proline	L-alanine	Galactose	Polycose	Sorbitol	Saccharin
Black-and-white ruffed lemurs	**15-20**	**10-20**	**2**	**70-90**	**30-40**	**30-110**	**Rejected at 1**
Humans	30.9	15.1	16.2	10-39	3.2-10	10.6-36.7	0.006-0.03
Spider monkeys	40	10	80	No data	30	No data	No data





Methods

A two-bottle preference test of short duration (1 min) was used, with water as the alternative stimulus, to assess the taste preference thresholds

[1] email: sandra.nicklasson@gmail.com