

# TASTE RESPONSIVENESS TO SEVEN SWEET-TASTING SUBSTANCES IN WHITE-FACED SAKIS



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## BACKGROUND

White-faced sakis include a high proportion of seeds and thus lipids into their diet. This raises the question whether they are as sensitive to sweet-tasting substances as seed-dispersing primates or whether their gustatory sensitivity reflects a dietary adaptation.

### Aims:

1. Assess sweet-taste responsiveness in a seed predator.
2. Determine taste preference thresholds and assess relative preferences for seven sweet substances.
3. Compare results to other primate species.

## METHODS

**Animals:** Four captive white-faced sakis (*Pithecia pithecia*) participated in the study.

**Procedures:** Two-bottle preference test of short duration.

- Determination of **taste preference thresholds**: animals were given the choice between water and a sweet substance at varying concentrations.
- Assessment of **relative sweetness**: all binary combinations of the five carbohydrates tested.

## RESULTS & DISCUSSION

### TASTE PREFERENCE THRESHOLDS:

- Sucrose: 10 mM
- Fructose: 10-40 mM
- Glucose, Maltose: 20-30 mM
- Lactose: 30-40 mM
- Rebaudioside A: 0.04 mM
- Stevioside: 0.2-0.5 mM



These fall into the lower range of values among primates, suggesting a comparatively high sweet-taste sensitivity.

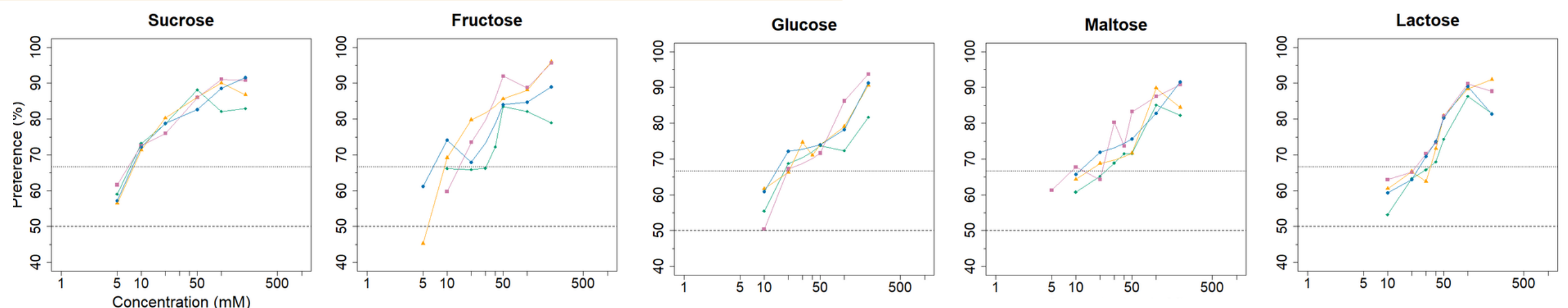


Figure 1. Taste preference thresholds for food-associated carbohydrates.

### RELATIVE TASTE PREFERENCES:

**Sucrose > Fructose > Glucose > Maltose > Lactose**



The sakis displayed the following pattern preference. This pattern was consistent with that reported in most tested primates so far.

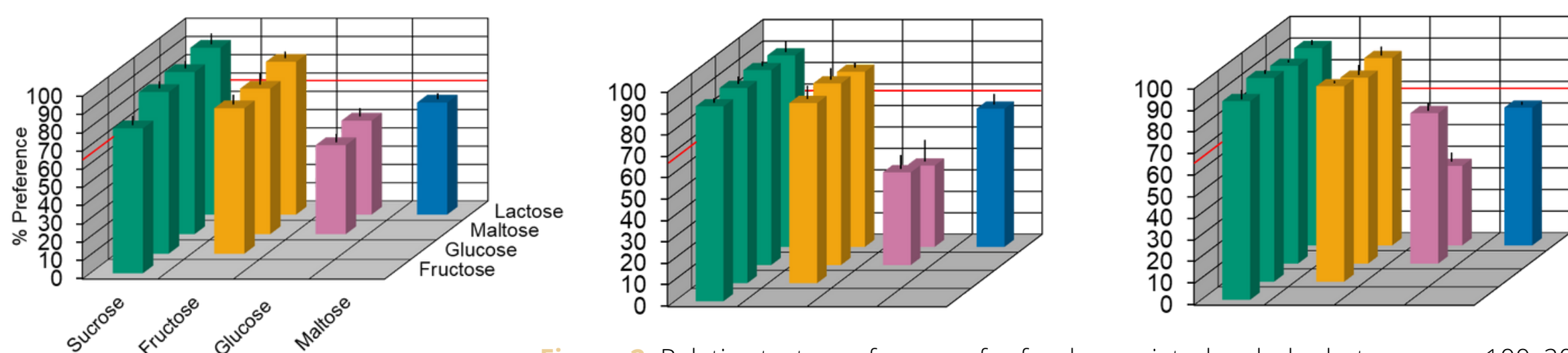


Figure 2. Relative taste preferences for food-associated carbohydrates across 100, 200 and 300 mM

## CONCLUSIONS

Sakis' gustatory response to sugars might reflect an advantage to **efficiently select energy-rich ripe fruits**, consistent with the seasonal variation in their diet. Their ability to **detect low sugar concentrations in seeds** might reflect an **adaptation to seed predation**.

