

Background

Olfaction is traditionally thought to be of minor behavioural relevance in primates.

Recent studies, however, suggest that primates have a well developed sense of smell. Among other things, it may play an important role in food selection.

Method

Detection thresholds were determined in four female spider monkeys for six structurally related pyrazines by using a food-rewarded two-choice conditioning paradigm.



The equipment used in the study.

Results

- All animals were highly sensitive to the substances tested
- More complex molecular structure generally resulted in lower threshold values

Table 1. Detection thresholds expressed as liquid dilution and gas phase concentration (ppm).

Odourant	Dilution	ppm
pyrazine	1:1,000	28
2-methylpyrazine	1:10,000	1.4
	1:300,000	0.045
2-ethylpyrazine	1:10,000	0.76
	1:100,000	0.076
2,5-dimethylpyrazine	1:10 million	0.00065
	1:100 million	0.000065
2,6-dimethylpyrazine	1:300,000	0.022
	1:3 million	0.0022
tetramethylpyrazine	1:1 million	0.0019
	1:3 million	0.00063

For each substance the lowest concentration that the poorest performing animal (upper line) and the best performing animal (lower line) could detect is shown.

Aims

- Determine detection thresholds for food-associated odourants in spider monkeys
- Assess the impact of molecular structure on olfactory sensitivity

Conclusions

- Spider monkeys have a well developed sense of smell and are sensitive to odourants associated with food
- Olfactory sensitivity is affected by molecular structure

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Olfactory sensitivity of spider monkeys (*Ateles geoffroyi*) for structurally related pyrazines



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