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

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Aims

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

Method

- **Subjects:** Four female spider monkeys
- **Equipment:** Two-choice conditioning paradigm
- **Odourants:** Six structurally related pyrazines

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

Results

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

The equipment used in the study.

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.