

ODOUR SIGNALS SEX, MALE STATUS, INDIVIDUAL IDENTITY AND GENETIC SIMILARITY IN MANDRILLS (MANDRILLUS SPHINX)

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Primates are traditionally considered to be microsmatic, with decreased reliance on olfactory senses in comparison to other sensory modalities such as vision. This is particularly the case for Old World monkeys and apes (catarrhines). However, some catarrhines possess scent-glands, suggesting that they do communicate via odour. We used gas chromatography-mass spectrometry to investigate the volatile components of sternal gland secretions using 88 swabs of the secretion and 95 samples of sternal gland hair collected from 27 male and 18 female semi-free-ranging mandrills. By comparing odour profiles with features of the signaller using principle components and discriminant function analysis, we found that odour profiles convey both variable (age, dominance rank in males) and fixed (sex, possibly individual identity) information about the signaller. An odour profile that signals sex, age and rank, combined with increased motivation to scent-mark and increased production of secretion in high-ranking males leads to a potent signal of the presence of a dominant, adult male with high testosterone levels in the dense rain-forest. Moreover, similarity in odour profile also reflected genetic similarity, suggesting that mandrills may be able to use odour to facilitate both kin selection and mate choice for genetically dissimilar partners. The similarity of our findings to those found in other mammals, and in primates that are more distantly related to humans, suggests a broader role for odour in primate communication and mate choice than is currently recognised.

Keywords: signalling, olfaction, communication, sexual selection