Mr Stinky; Bacteria in Scent Gland help Hyenas Communicate

Smelly bacteria determine the social life of Hyenas. A new study by Michigan State University has found that bacteria in scent glands reveal the animals' reproductive status, sex and age.

The study also shows that certain bacteria don't just hitchhike on animals but play an important role in communication and behavior.

The latest study was based on molecular analysis of trails of scent 'paste' of spotted and striped hyenas in Kenya. Hyenas mark their territory by leaving a nasty-smelling substance called "paste" on the grass to avoid aggression and identify members of their clan. This paste not only reveals details about a hyena but also helps it "cement group cohesion, especially among females," reports The National Geographic.

"When hyenas leave paste deposits on grass, the sour-smelling signals relay reams of information for other animals to read," said Kevin Theis, the paper’s lead author and MSU postdoctoral researcher, according to a news release. "Hyenas can leave a quick, detailed message and go. It's like a bulletin board of who's around and how they're doing."

The gland that releases the stench lies between the anus and the tail. It is anaerobic, moist and has lots of nutrients, making it an ideal location for bacteria to thrive. The idea of certain anaerobic bacteria producing the foul smell in the sweat glands isn't new. There have been at least 15 studies in the past looking at the various fermentative bacteria in 'paste' of hyenas.

But, there was a slight problem in these studies - they all relied on culture-based methods, which involves isolating and growing bacteria in lab. The present study bypassed this process and conducted molecular analysis of the paste, which helped identify more bacteria in the scent samples than all other studies combined.

Although, the study was conducted on certain species of hyenas, researchers believe that it supports the hypothesis that bacteria help animals communicate.
Next, Theis and team will be changing the bacterial composition of paste samples and checking its effects on other hyenas' behavior.

The study is published in the journal Proceedings of the National Academy of Sciences.

Check out this article by Kay E. Holekamp, a zoologist at Michigan State University while she was studying hyena-behavior at Masai Mara National Reserve in Kenya.

Hyenas are often portrayed as cowards and timid. However, they are bold and can attack large animals and even humans. Hyena society is structured and they use postures, signals and sounds to communicate with each other. A straight tail, for example, is a signal for attack, whereas a bent tail shows that the hyena is excited.
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