Self-Medication in Animals

The concept of non-human animals self-medicating was first introduced to a wider audience by Daniel Janzen (1978). He argued that energy requirements alone could not explain unusual feeding habits shown in wild animals, suggesting that instead animals utilized the secondary metabolites from plants as stimulants, laxatives antibiotics and anti-parasites. This is of importance as 25% of modern medicine is derived from plants and less than 1% is screened for medicinal potential so any information available could be used to identify possible plants of interest.

Examples of Self-Medication in Animals:

- Pigs in Mexico eat pomegranate roots which contain and alkaloid which is toxic to tape worms.
- Wild Boars in India dig out and eat pigweed which is commonly used by humans as an anthelminthic (a drug to expel parasitic worms and other internal parasites by stunning/killing them without causing the host any significant damage).

Eloy Rodriguez and Richard Wrangham were the first to apply the term of zoopharmacognosy, which is defined as "a behavior in which non-human animals self-medicate by selecting and ingesting/topically applying plants, insects, soils or psychoactive drugs to prevent/treat disease", in 1991.

Examples of Medicinal Knowledge observed from Self-Medicating Animals:

- Bears in India prefer plants like bear root which they chew into a paste and apply to their faces or spray on their limbs and contains coumarins that can be effective against flea, ticks and fungal infections. The medicinal mixture "Kandi Panchamritham" derived from the meals of bears is used in Southern India as a result of these observations.
- Pikas are mountain dwelling mammals which store food for winter in hay piles; while doing so they can be observed 'haying' Alpine Avens, which are toxic, and laying these plants in their storage hay piles. These Avens inhibit bacterial activity and will preserve the food in the hay pile over winter.
- African Elephants are known to use plants which can induce labor. Pregnant elephants usually travel 4-8km/day however, when tracked it reveals that they will travel between 25 and 42km towards the end of gestation in order to find specific small trees of the *Boraginaceae* family (forget-me-not family) and eat all the leaves and woody trunk, after four days they will then give birth. This plant is also used by Kenyan women to induce labor.

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Page 1 of 1