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# Plants used by wildlife as a medicinal agent

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## ARTICLE INFO

## ABSTRACT

*Plants are an important part of all living creatures of the world. From roots to flowers and fruits, every part of plant is used for different purposes. Some medicinal plants have been used for treatment by humans since ancient times. The knowledge of using plants as a medicinal agent came to humans by observing and studying animals and their behavior as there are pieces of evidence found of the usage of the same plants for the treatment of the same illness in both humans and animals. Animals have the capability to identify the symptoms of their illness and search for a cure. Since time immemorial, they have been using plants as medication. The technique of animal self-medication has become a confirmation of the use of plants as medicinal agents. Keeping the importance of medicinal plants in mind, a literature survey was done in 2018 to compile data on medicinal plants consumed by wildlife and the results revealed that 15 medicinal plants are commonly used by some animals.*

## INTRODUCTION

Every plant is important whether it is edible or nonedible. Plants not only increase the beauty of nature but also provide various services to birds, animals, and humans in the form of food, medicine, and shelter. Some plants have food value, some have medicinal value and some have both. In modern times, there is a prevalence of several diseases without any accurate cure. Nowadays, several synthetic

drugs are developed against one disease, which is not required. Artificial medications have caused humans to develop additional complications along with the ongoing disorder. The intake of antibiotics during cold, cough, and fever and their discontinuance have caused the global issue of antimicrobial resistance (Llor and Bjerrum 2014). Higher the dose and power of the medications, the chances of severe complications become higher. It is to be brought to the notice that in ancient times, humans only suffered from illness occasionally. Even then, there was a cure for the diseases in the form of natural treatments through medicinal plants. The motivation for using medicinal plants in pharmaceutical science is to develop medications with fewer or no side effects during and after treatment. Therefore, it is necessary to identify medicinal plants and their role in the treatment of diseases (Sofowora et al. 2013). One of the ways to confirm the use of a particular medicinal plant against disease is by taking into consideration the study of animal self-medication techniques during drug analysis and preparation (Chhangani et al. 2002). Animals also suffer from illnesses and they also have the ability to defend themselves from life-threatening disorders. They identify the symptoms of the disease and accordingly ingest or externally apply the curative agent to treat themselves. Humans have learned about medicinal knowledge from looking at animals and have applied the same knowledge to use as they not only share evolutionary history but also have common physiology as that of animals. Keeping the importance of medicinal plants in mind, a literature survey has been done to compile information on the use of plants by animals for the treatment of

some diseases and recommend the sustainable use of medicinal plants for the conservation of wildlife as well as the ecosystem.

## METHODOLOGY

A literature and field survey were carried out from August 2018 to November 2018 using soft and hard copies of the subject taken in the present study. ResearchGate, Google Scholars, NCBI, and other groups were used to search the published literature. Field survey was done in Odisha state of India. Plants and animals are identified by Dr. Sanjeet Kumar.

## RESULTS AND DISCUSSION

Medicinal plants have been used to treat diseases by animals and humans since ancient times. From the present survey and filed works, 15 medicinal plants were compiled that were consumed by wildlife. Hanuman langur feeds on young leaves of *Argyreia nervosa*, *Careya arborea*, *Cissus quadrangularis*, and *Dioscorea alata*. They also eat leaves and fruits of *Artocarpus heterophyllus* and *Ziziphus marutiana*. They also consume leaves of *Azadirachta indica*, *Butea monosperma*, and flowers and fruits of *Bombax ceiba* to increase milk production to feed their infants. Ripe fruits of *Syzygium cumini* are also consumed by Hanuman langurs. Indian giant squirrels were observed to consume the bark of *Diospyros melanoxylon* during the study period (Present study). Gorilla feeds on the leaves of *Lobelia giberroa* and *Lobelia wallastonii* occasionally as treatment and get inebriated due to the presence of alkaloids in the plants belonging to the genus *Lobelia*. chimpanzees ingest *Vernonia amygdalina* and recover from the

symptoms. They consume the pith from younger fleshy shoots of *V. amygdalina* by removing the bark and leaves and extracting the bitter juice and only small amounts of fiber. Chimpanzees also swallow the leaves of *Aspilia*

*mossambicensis* which does not provide any nutritional value but may have some medicinal properties (Huffman and Seifu 1989; Huffman et al. 1993; Cousins and Huffman 2002; Huffman 2015).

**Table 1:** List of plants and their parts consumed by wildlife

| Plant name | Parts consumed | Wildlife | Source |
|---|---|---|---|
| *Argyreia nervosa* | Young leaves | Hanuman langur | Present study |
| *Artocarpus heterophyllus* | Young leaves and fruits | Hanuman langur | Present study |
| *Aspilia mossambicensis* | Leaves | Chimpanzee | Huffman (2015) |
| *Azadirachta indica* | Leaves | Hanuman langur | Present study |
| *Bombax ceiba* | Flowers and fruits | Hanuman langur | Present study |
| *Butea monosperma* | Leaves | Hanuman langur | Present study |
| *Careya arborea* | Young leaves | Hanuman langur | Present study |
| *Cissus quadrangularis* | Young leaves | Hanuman langur | Present study |
| *Dioscorea alata* | Young leaves | Hanuman langur | Present study |
| *Diospyros melanoxylon* | Bark | Indian giant squirrel | Present study |
| *Lobelia giberroa* | Leaves | Gorilla | Cousins and Huffman (2002) |
| *Lobelia wallastonii* | Leaves | Gorilla | Cousins and Huffman (2002) |
| *Syzygium cumini* | Ripe fruits | Hanuman langur | Present study |
| *Vernonia amygdalina* | Pith from younger fleshy shoots | Chimpanzee | Huffman and Seifu (1989) & Huffman et al. (1993) |
| *Ziziphus marutiana* | Leaves and ripe fruits | Hanuman langur | Present study |

**Figure 1:** Vegetative parts of *Cissus quadrangularis*



**Figure 2:** Vegetative parts of *Careya arborea*

## CONCLUSION

From the above study, it was concluded that the animals consume plants for food and medicine. Plants used as food by animals have been widely reported but plants as medicines are less or not reported. Therefore, there is a necessity for the documentation of the medicinal plants consumed by animals in different periods of time in drug development. It is also recommended by the authors for the conservation of wildlife and mankind,

there should be sustainable use of medicinal plants.

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