Chapter 12
Machine Learning Approach:
Enriching the Knowledge of Ayurveda From Indian Medicinal Herbs

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ABSTRACT

Ayurveda medicines uses herbs for curing many ailments without side effects. The biggest concern related to Ayurveda medicine is extinction of many important medicinal herbs, which may be due to insufficient knowledge, weather conditions, and urbanization. Another reason consists of lack of online facts on Indian herbs because it is dependent on books and experts. This concern has motivated in utilizing the machine learning techniques to identify and reveal few details of Indian medicinal herbs because, until now, it is identified manually, which is cumbersome and may lead to errors. Many researchers have shown decent results in identifying and classifying plants with good accuracy and robustness. But no complete framework and strong evidence is projected on Indian medicinal herbs. Accordingly, the chapter aims to provide an outline on how machine learning techniques can be adopted to enrich the knowledge of Indian herbs, which advantages both common man and the domain experts with wide information on traditional herbs.

INTRODUCTION

Ayurveda – "Science of Life" active from 5000 years ago is a traditional Indian Vedic culture. Ayurveda knowledge is already well incorporated in Tibetan and Chinese traditional medicines. It being an Indian Traditional System, even today it focusses on personalizing the health care system. Ayurveda therapeutics incorporates the concept of individual nature. The herbs (Ayurveda leaves) being the key component of Ayurveda Medicines is generally used for body cleansing, boosting immunity against diseases and keep a balanced mind, body and soul. Usage of herbs is the key component of Ayurveda medicine. Most of the herb species are best classified by recognizing their leaves.

Many plants are used for both medicine as well as for ornamental purpose. Numerous plants can be used to soothe inflammations and wounds. It has to be noted that plants needed for medicinal purpose do not need a large area to grow, they can even be grown easily in kitchen garden. This motivates in constant growth of herbs which benefits in treating many ailments naturally. Some of the herbs that can be grown effortlessly are:

- **Tulsi / Basil:** In Ayurveda, it is called as 'Elixir of life'. A well-known and found in almost all south Indian home. Tulsi is even listed in NASA list as air purifier, has anti-cancer properties, treats digestive problems, flu and common cold.
- **Coriander / Cilantro:** Used as garnishing in almost all of the south Indian dishes as it is well known for refreshing and treating digestive issues.
- **Mint:** A most common home-grown medicine herb. Its unique fragrance refreshes mind and well treats insomnia, diarrhea, cold and cough.
- **Lemon grass:** Lemon grass through tea relieves sore throat, menstrual pain, treats stress and insomniac. It has anti-pyretic properties.
- **Carom / Ajwain:** An edible plant with ridged leaves. It is believed as good luck by ancient Chinese. Treats stomach disorders and digestive problems.

Many developing countries consider using medicinal plants as a living tradition (WHO, 2013). It is estimated that majority of the primary needs of developing countries are met by the traditional medicine which depends on plants as the main source. The author Karunamoorthi, K. (2013) has given overview on how the traditional knowledge plays a major role in developing countries helping the poor for a healthier life. It is saddened that many medicinal plants are at extinction in big number because of many reasons and those reasons will be listed in the next section. Also, efforts to be taken care by every individual to reintroduce the species which are vulnerable and extinct. Few of the endangered medicinal plants found in India are:

- **Elephant's Foot**
  - Scientific Name: Dioscorea deltoidea
  - Native place: India, China, Afghanistan, Bhutan, Cambodia, Nepal, Pakistan, Thailand and Vietnam,
  - Used parts: The dried rhizomes are used both as traditional medicine
  - Benefits: Gastric problems, and as steroidal drugs designed for western medicine.
- **Jatamansi**
  - Scientific Name: Nardostachys grandiflora

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