Review on New Species of Ravenala Plant

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Abstract: Ravenala madagascariensis Sonn., travellers tree is one of the most popular medicinal plants in Madagascar, India and the several of African countries. Ravenala is a genus of Ravenala Adans containing monocotyledonous flowering plant. It is not a true palm (family Arecaceae) but it is the member of strelitziaceae family. It is used as antiseptic and used traditionally in India as tea made from young leaves for treatment of diabetes. Purpose of this article is to know or understand the study of whole ravenala plant including their morphological characters.

Keywords: Ravenala madagascariensis sonn., Strelziaceae, Madagascar, Cultural conditions.

Introduction: Ravenala madagascariensis Sonn. (Strelziaceae) is one such fascinating ornamental plant belonging to bird of paradise, also known as Visirivazhai in Tamil, is a native of India, Madagascar. Ravenala is a chiefly herbaceous angiospermous plants having an embryo with a single cotyledon (monocotyledonous) usually parallel-veined leaves. Ravenala tree is commonly known as Traveler’s for the treatment of diabetics and kidney stone problems. Also the ravenala seeds were reported to be antiseptic. The leaves show close resemblance with that of banana (Musa paradisiaca). The scientific name Ravenala comes from Malagasy ravenala meaning “forest leaves”. Such a plant used as food, for building purpose, for medicinal use such as antiseptic, antidiabetic, stomach ache. In this article we are studying about leaves, fruits, bark and seeds of ravenala plant. Five other species were described in all from Madagascar. Ravenala agatheae Haev. Razanats., R. blanchi Haev., V. Jeannoda and A. Hladik, R. grandis Have., Razanats, A. Hladik and P. Blanc, R. hladikorum Haev., Razanats., V. Jeannoda and P. Blanc, R. madagascariensis Sonn., R. menahirana Have. And Razanats.
Plant Profile: Ravenala madagascariensis

Use in urban setting at Jakarta, Indonesia

In a park of Phnom Penh, Cambodia

Travellers Palm and flower, India

Detail of a leaf’s structure

Seeds
Organoleptic Features:

Macroscopic and microscopic analysis:

The macroscopy and microscopy of the leaf was studied according to the method of Brain and according to the method of Turner\(^5\). For the microscopically studies the cross sections were prepared and stained as per the procedure of Johansen\(^6\) and the quantitative microscopy was studied as per the procedure given by Wallis\(^7\) ad P.K. Lala\(^8\). The powder analysis is carried out according to the method of Brain, Turner\(^9\) and the method of C.K. Kokate\(^10\).

Synonyms:

Tavellers plant, Traveller’s palm.

Geographical source:

Ravenala is a genus of monocotyledonous flowering plants. It found in India, Madagascar.
Scientific Classification:

<table>
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Morphological Characters:

**Region Of Origin:** Madagascar, India.

**Dimensions:** Height: 30 ft. 0 in. - 50 ft. 0 in.

Width: 15 ft. 0 in. - 25 ft. 0 in.

**Plant Types:** Tree

**Woody Plant Leaf Characteristics:** Broadleaf Evergreen

**Cultural Conditions:**

**Light:** Full sun (6 or more hours of direct sunlight a day)

**Soil Texture:** High organic matter, Loam (slit)

**Soil Drainage:** Good drainage, moist.

**Available space to plant:** 12-24 ft.

24-60 ft.

**Fruit:**

**Fruit Type:** Capsule

**Fruit Length:** >3 inches

Fruit Description: Woody capsules 3 ½ long with edible blue seeds

**Flowers:**

**Flower colour:** White

**Flower Inflorescence:** Cyme

**Flower Value To Gardener:** Good dried, Showy

**Flower Petals:** 2-3 rays/petals

**Flower Description:** A seasonal bloomer 3 petaled white boat shaped spathes of flowers appear in cymes

**Leaves:**

**Woody plant leaf characteristics:** Broad evergreen

**Leaf Type:** Simple

**Hairs Present:** No

**Leaf length:** >6 inches
Leaf Width: >6 inches

**Leaf Description:** Huge eaves form a fan shape, cup-shaped petioles collect rain water hence the common name, as it was thought travellers used this water.

**Bark:**

**Bark Description:** It contain 12 diameters unbranched trunk with leaf scar rings.

**Cultivation:** The plant requires a sunny spot until it is larger. It responds well to fertiliser, especially when nitrogen is high during the growing season. This produces better growth and foliage during cultivation. The height of growing plant is 7 m (23ft) and it requires moderate water for the process of cultivation.

**USES:**

**Medicinal use:** Ravenala plant is used in diabetic and kidney stone problem. The oil of ravenala seed is used as antiseptic.

**Other uses:** The leaves are used for roofing and as a packing materials. The leaf petioles and midribs are used for making the walls. The bark is used for making floors in houses and stem for making constructions of houses.

**Materials and Methods:**

A. **Selection of plant:** The fresh leaves of the plant were collected from the PDEAS Shankarrao Ursal college of pharmaceutical sciences and research centre Kharadi pune -14 Maharashtra, India.

B. **Authentication of plant:** The plant was authenticated by Head of department of PDEAS Shankarrao Ursal college of pharmaceutical sciences and research centre Kharadi pune 14

C. **Plant Material:**

1) The fresh leaves of plant were collected from the Pune city, Maharashtra.

2) The leaves are cleaned by washing with running water and air dried at room temperature for four hours and letter milled into powder using a grinding machine.

3) The powdered sample was stored in a sterile polythene bag and kept at 28±2°C for 4 days for subsequent analyses.

D. **Preparation of Extract:**

1) The powdered sample (40g) was mixed with 200ml of n-Hexane (99.99%) and ethanol (95%v/v) respectively.

2) Aqueous extract was prepared by mixing 40g of the powdered leaf samples with 200ml of cold distilled water (28±2°C) and hot distilled water (100°C), respectively.

3) The mixtures were allowed to stand for 72h with constant stirring, and then filtered with a clean white muslin cloth.

4) The ethanol and n-Hexane extracts were later air-dried at 28±2°C for 48h and reconstituted in 30% Dimethylsulphoxide (DMSO) by mixing 10g each extract with 50ml of 30% DMSO to make a concentration of 200mg/ml.

5) The reconstituted ethanol and n-Hexane extract were allowed to stand for 24h before sterilization was achieved using Millipore membrane filter(0.22µ).
RESULT AND DISCUSSION

Different parts of the ravenala plant was studied including their morphological characteristics. The most commonly used part is trunk, leaves and seeds which are mostly used in medicinal use. Leaves of ravenala plant are used for diabetics as per extraction.

CONCLUSION:

Ravenala madagascariensis is very important in cultural, edible and traditional as well as medicinal purpose. The sale of Ravenala madagascariensis is used for building materials can also provide an additional source of income to the family.

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