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Optimizing gum exudation from *Moringa perigrina*

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Abstract

Moringa perigrina is a tree distributed in Yemen and some countries of Asia and Africa. It is rare in Wadi Hadhramout and is scattered as singular plant. The species is threatened to extinction because of poor regeneration. Gum exudate from the tree is of medicinal use in back-pain treatment. Experiment was conducted at Swairy forest research arboretum on trees for gum exudation in each month of the year wherein buds, stems and branches of different diameter size classes were wounded to find out best period and wound size for gum production. October was best month for gum exudation and a tree of 6 years old produced 6.2 kg gum /year with a mean of 8 wounds each month. Additionally, observations were also recorded of the gum production naturally occurring on different plants.

Key words : Exudation, Gum, *Moringa perigrina*

Introduction

Moringa perigrina belongs to the family Moringaceae. It is an ever green tree of 6 m height with erect tree trunk having single stem or multi grey stems (Plate 1). The leaves are compound in which the young seedling constitutes a pinnate of 4-5 pairs of leaflets ending with a single terminal leaflet; but in old plant bipinnate leaves, 3-14 pairs of opposite small leaflets exist. As the plant gets older, the leaves get longer and longer, but the leaflets get smaller and more widely spaced (Olson, 2002). The flower is bisexual white pink with 5 sepals, 5 petals, 5 stamens and pistil. The flowering time is in February. The pod is about 45 cm long and 1.5 cm wide. The ripe pod is round and curved with long strip lines. The pod contains 9-22 triangular capsule seeds. 1000-seed-weight is 811 gm. The main root is white with tuber descending from secondary roots.

Twelve species of the genus are reported from Africa and Asia (Palmer, 1977). Al-Khulaidi (2000) mentioned *M. perigrina* and *M. oleifera* from Soqotra region of Yemen. The habitat of *M. perigrina* is Hadramout, Aden, Dhfar and Masqat while it is distributed in Egypt, Abyssinia, Nubia, Eritrea, Kordofan, Sennaar, Arabia and Syria (Blatter, 1978). Batheib (1993) mentioned *M. perigrina* habitat in Yemen from Dala, Tor al-baha, Abyen, road Nisab-Bihan and Wadi Hadramout. *M. perigrina* is a rare tree in Wadi Hadramout and it has been found as single tree in Wady Saar, W. Shoohoh, W. Gethmh, W. Jaimah and W.Yeb. Local people of Wadi Hadramout collect gum from the stems and branches of the tree using it as a medicine against back pains but they do not know about its seed oil.

Seeds and oil obtained from the seeds of *M. perigrina* are parts of folklore medicinal uses for treating headache, fever, abdominal pain, constipation, burns, back and muscle pains (Batanouny *et al*., 1999).

The oil (Ben oil) has been used by the Egyptians since 3000-2000 BC. The seeds are of bitter sweet taste and rich in oil (Batanouny *et al*., 1999). Oil extracted from the seeds contains stearic, palmitic and oleic acids (Batheib, 1993). Accordingly, the gum exudate from the tree is one of folklore medicinal use, therefore it will be very important to optimize the gum exudation for future application of drug production.

Materials and Methods

The study was carried out from 1982 to 2008. During the period vegetational surveys were executed for most tributaries Wadies (Wadi al-thahab, W.jethmeh, W.al-masileh, W.sur, W.bin-ali, W.shoohoh, W.yeb,W.edim and W.duan) of Wadi Hadramout. Tree pods were collected and treated seeds were planted in black polythene bags filled with fertile soil. After few months, seedlings were transplanted in the forest research arboretum. An observation on gum exudation was conducted on trees