

**Release of Two Varieties
of
DAMASK ROSE
(*Rosa damascena* Mill.)**

JWALA
(IHBT.Gulab.I)

HIMROZ
(IHBT.Gulab.II)

FOR COMMERCIAL CULTIVATION



by

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Palampur (HP)

June 7, 1997

Introduction

Damask rose (*Rosa damascena* Mill.) is an important source of rose products like rose oil, rose concrete, absolute and rose water. These are important base materials of perfumery industry. Rose products have been widely used in high class perfumes, colognes and cosmetics giving strong top notes having distinction and long lasting effects. Rose oil is used for compounding and gives characteristic rose odour and distinctive floral tonality. Rose products have good demand in India as well as in other countries. The indigenous tobacco industry is the largest consumer of rose water and rose attar. Realising the vast potential for Damask rose cultivation, a programme to develop suitable varieties for sub-tropical and temperate regions was undertaken. The Institute of Himalayan Bioresource Technology (IHBT) has developed two varieties of Damask rose designated as JWALA for sub-tropical and HIMROZ for temperate agroclimatic zones. These varieties give consistent flower yield and oil quality in different locations.

(IHBT.Gulab.I) - JWALA

This variety is suitable for cultivation in sub-tropical northern plains, mid-hills and mild temperate regions upto 1200 m altitude. The plants are short, compact, bushy and have low tendency to produce non-bearing shoots. Under sub-tropical conditions it flowers in March-April (main flush) and then in September (second flush). It is less effected by management lapses e.g. time and height of pruning etc. thereby ensuring a good crop. It has short thick pedicellate flowers (Fig. 1) borne in clusters in compact bunches (Fig. 2). Weight of single flower varies from 2.2 to 5.0 gms, and number of petals vary from 25 to 55. It flowers for 28-30 days in a year during March-April. Flowering time can be manipulated upto some extent by pruning and other agronomic practices. It is tolerant to hail storm, rains and high velocity winds. Oil content varies from 0.030-0.06%.



Fig. 1 Flower shoot with short and thick pedicels



Fig. 2 Cluster of buds in compact bunch

DNA Fingerprints

Random amplified polymorphic DNA (RAPD) analysis was performed on Damask rose varieties. Twenty one random primers from Operon Biotechnologies Ltd. were used. Four primers did not give any amplification while 17 primers revealed polymorphism. An example is given in Fig. 3 (panel A&B) with two different primers revealing polymorphic bands between JWALA and HIMROZ, new varieties of *Rosa damascena*.

(IHBT.Gulab.II) - HIMROZ

This is suitable for cultivation in mild temperate to cold temperate regions (1200-2500m). Plants are tall having asymmetric and non-terminal shoot growth with long and thin pedicellate flowers (Fig. 4) borne single or in loose bunch clusters (Fig. 5). Weight of single flower varies from 1.8 to 4.0 gms and number of petals vary from 25 to 45. It is winter tolerant and grows in temperate areas without any visual sign of winter injury. Flowering period is of 22-25 days which falls during early summer. Flowering time depends on ambient temperature of the location. Loose bunch flowers facilitate easy plucking. It produces consistent flowering shoots in temperate regions and unproductive shoots (upto 65%) if grown under tropical and sub-tropical conditions. Oil content varies from 0.030 to 0.060%.

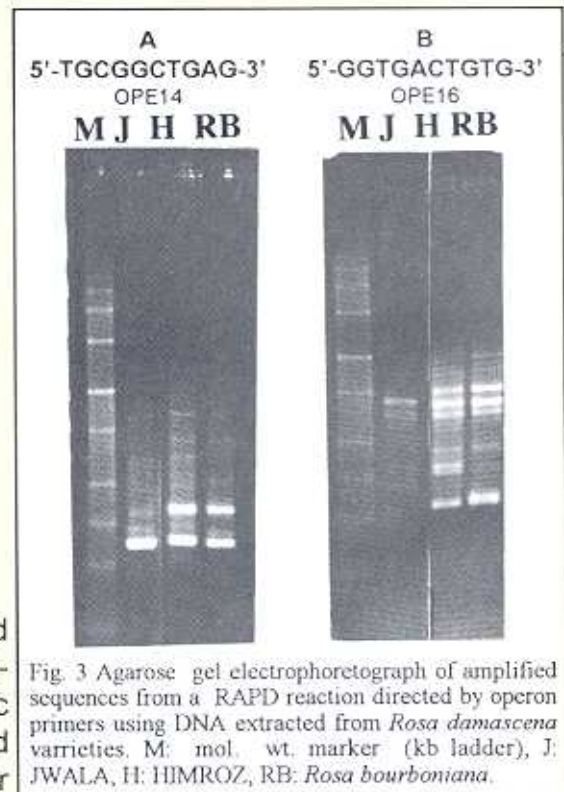


Fig. 3 Agarose gel electrophoretogram of amplified sequences from a RAPD reaction directed by operon primers using DNA extracted from *Rosa damascena* varieties. M: mol. wt. marker (kb ladder), J: JWALA, H: HIMROZ, RB: *Rosa bourboniana*.



Fig. 4 Flower shoot with long and thin pedicels



Fig. 5 Cluster of buds in loose bunch

Oil Quality

Standards for rose oil are presently not available in our country. These standards are being developed. Ratio of citronellol/geraniol, presence of *trans-trans* farnesol and cyclic monoterpene ethers *cis* and *trans* rose oxides, play major part in the odour and performance of rose fragrance. The stereoptanes give fixative property to rose oil. The alcohols (citronellol, geraniol and phenyl ethyl alcohol) impart main body character to rose oil. Oil of JWALA is relatively rich in citronellol than that of HIMROZ, though their ratio of citronellol/geraniol remain within the prescribed limits of 1 to 2. Oil of JWALA has lower stereoptanes than HIMROZ. However, there is no major difference in overall quality of rose oil of both the varieties, when grown under recommended conditions.

Economic Feasibility of Damask Rose Cultivation

The two varieties when grown in recommended agroclimatic zones give similar flower and oil yields. On an average, flower yield varies from 40 to 45 quintal per hectare, with oil yield of 1.00-1.25 kg. per hectare. As per market rate, pure rose oil is worth Rs. 1.25 to 1.50 lakhs per kg. Fresh rose flowers can be sold @ Rs. 2,000/- per quintal to nearby rose oil distillers. Dried rose flowers/petals are also sold @ Rs. 10-15 thousand per quintal in specified markets. A net profit of about Rs. 40-50 thousand per hectare can be realised from the cultivation of new Damask Rose varieties.

Planting Material

Planting material of JWALA and HIMROZ varieties is available with this Institute. Planting can be done in monsoon (Jul/Aug) but winter season (Nov/Dec) is preferred. Interested planters can book their requirement to obtain this on "First come First serve" basis, on payment.

Complete technology package with all details for cultivation as well as processing for various products is available with the Institute.

For further details and information please contact
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Cover Page Photograph: Damask rose plantation established at IHBT, Palampur