Ornamental Crops: A Source for Essential Oil Extraction Industry

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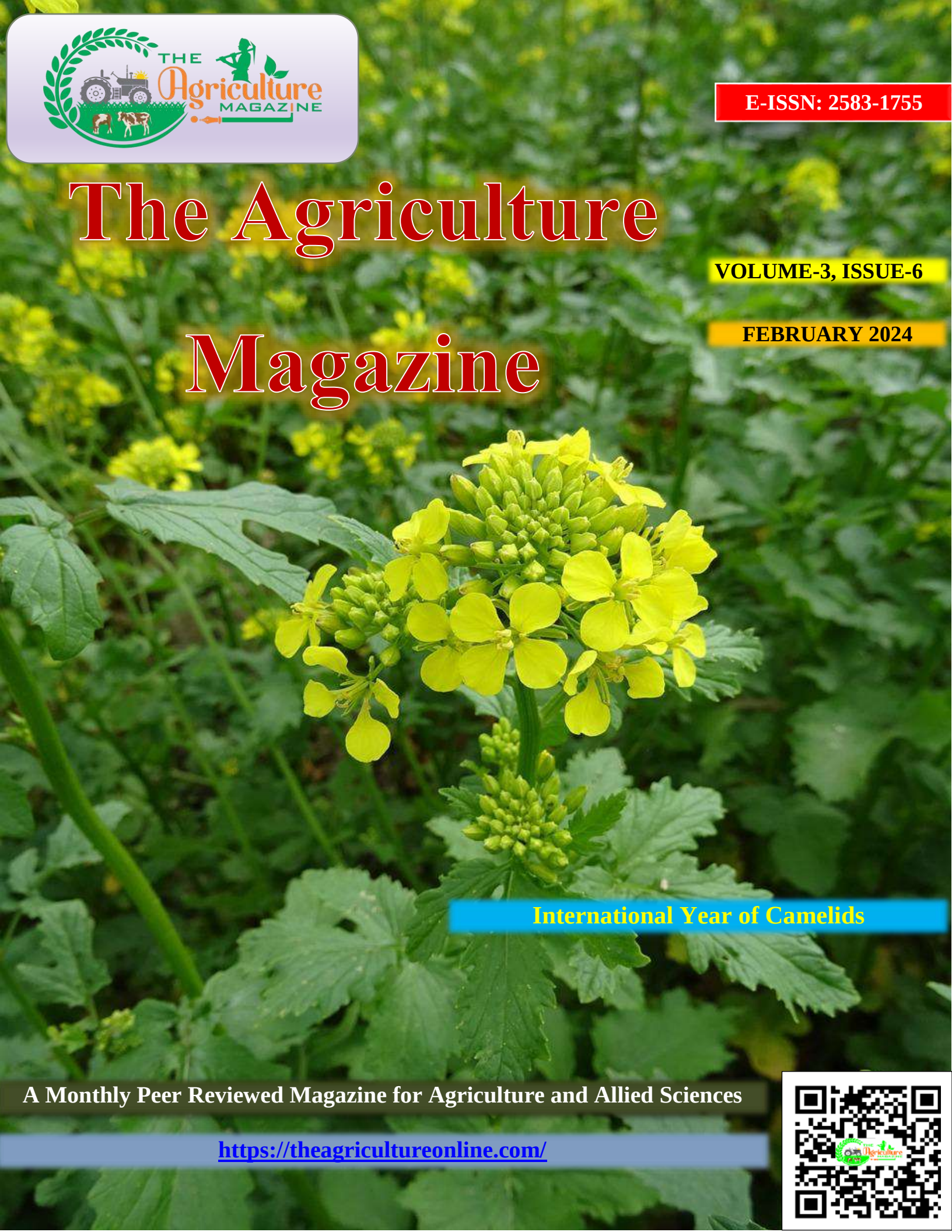

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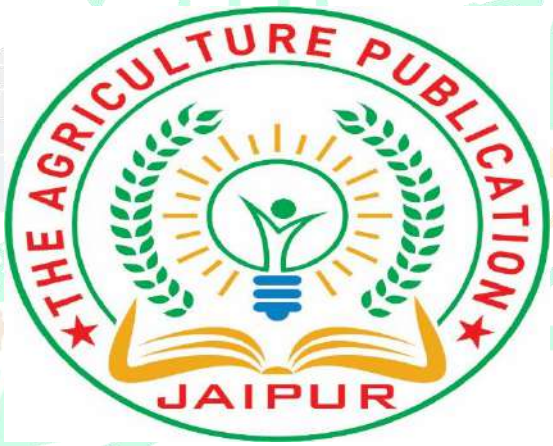

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Ornamental Crops: A Source for Essential Oil Extraction Industry

M. Kumaresan

Introduction

Flower-patterned essential oils are basically produced or extracted from the flowering part of the plants. Flowers acquire naturally sweet and floral scent that is conscientious for the type of aroma produced from its natural essential oil. Essential oils are present in different parts of plants viz. leaves, bark, wood, roots, gum, seeds, fruits, rhizomes and flowers etc., Essential oils are most famous for used in perfumes and other type of fragrances. Essential oils are indispensable in various human activities. They are adjuncts of cosmetics, soaps, pharma-ceutical preparations, perfumery, confectionery, ice-cream, aerated waters, disinfectants etc.

Components responsible for fragrance in ornamental crops

Flowers	Chemical constituents
Rose	1- citronellol, nerol, gereniol, linalool, eugenol etc.
Jasmine	Benzyl acetate, benzyl benzoate geraniol, eugenol, benzaldehyde, indole, nerol, methyl jasmonate etc.
Tuberose	Geraniol, nerol, benzyl alcohol, methyl benzoate, methyl salicylate, eugenol and methyl anthranilate
Marigold	Dihydrotagetone , β-ocimene, tagetone, limonene etc.,
Murraya paniculata	Phenyl ethyl alcohol, indole, (*E*)-nerolidol, benzyl benzoate, phenyl ethyl benzoate and manool
Champaca	Linalool, methyl benzoate, benzyl acetate, phenyl, α-ionone, β-ionone, ionone oximes and methyl linoleate
Carnation	Phenyl ethyl alcohol, eugenol, hexyl benzoate, benzyl benzoate, benzoin, nootkatone, benzyl salyicylate, m-cresyl phenyl acetate, hexadecanoic acid and eicosene.

Essential oil yield of major flowers

Flower crops	Concrete recovery (%)
R. damascena	0.14
R. centifolia	0.11
R. borboniana	0.09
J. auriculatum	0.28-0.36
J. grandiflorum	0.25-0.32
J. sambac	0.14-0.19
Tuberose (Single flowered cultivars)	0.08-0.11
Marigold (*Tagetes* sp.)	1.25
Champaca *(Michelia champaca)*	0.16-0.20
Magnolia *(Magnolia biondi)*	0.03-0.16
Ylang-ylang *(Cananga odorata)*	0.8-0.95
Nerium *(Nerium indicum)* cv. Double pink	0.32-0.33

Flowers crops used for extraction of essential oil

Rosa sp.

R. damascena

- ✓ One of the world's most fragrant flowers is the rose.
- ✓ *R. damascena* and *R. bourboniana* are grown for rose oil in India.
- ✓ The world produces 10 t of rose oil, of which Bulgaria produces more than 5 t.
- ✓ India produces very little rose oil, not more than 10 kg.
- ✓ *Rosa damascena* yielded 1 kg of oil per 4000 kg of flowers in Bulgaria.
- ✓ Rosa damascene yields 0.05% oil.
- ✓ Bulgaria and Turkey are the world's leading producers of rose essential oil

Jasminum spp.

- ✓ India, Egypt, China, and Morocco are the countr-

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ies that produce jasmine essential oil.

Jasminum grandiflorum

- ✓ Jasmine is the most important raw material used in perfumery.
- ✓ The top producer of concrete is Egypt (10-15 t yr^{-1}), followed by Morocco, France, Algeria, Italy, and India.
- ✓ The oil recovery of *Jasminum auriculatum* is the highest at 0.29%.
- ✓ The finest oil (0.25-0.30%) comes from *Jasminum grandiflorum*, most commonly used species for essential oil extraction.

Polianthes tuberosa

- ✓ Tuberose flowers emit a powerful and delightful fragrance.
- ✓ The concrete concentration in single flowered cultivars ranges from 0.08 to 0.11 percent.

Polianthes tuberosa

- ✓ From 30,000 kg of loose flowers, 27.5 kg of concrete and 5.5 kg of absolute can be obtained.
- ✓ Generally speaking, 1150 kg of flowers yield 1 kilogram of concrete.
- ✓ Oil is used to create stronger fragrances and is also utilized in non-alcoholic drinks, baked foods, ice cream, and candies.

Tagetes sp

- ✓ One of the most popular types of essential oils used in a baby product is marigold.

Tagetes minuta

- ✓ Commercial production of *T. minuta* and *T. erecta* essential oils for use in perfumes occurs in France and Africa.
- ✓ About 1.25 percent of freshly ripened flowers yield essential oil content

Champaca

- ✓ *Michelia champaca* is also known as Magnolia Champaca.

Michelia champaca

- ✓ Compounds such methyl eugenol, 62% linalool, beta-elemene, and beta-caryophyllene are found in champaca oil.
- ✓ It emits a powerful, lingering, and very nice scent.
- ✓ Ylang Ylang oil and champaca oil can be combined.

Murraya paniculata

- ✓ Orange jessamine, or *Murraya paniculata*, is an ornamental plant with white blooms that have a pleasant scent.

Murraya paniculata

- ✓ *M. paniculata* are very scented and contain a significant amount of essential oil, they are also employed as a source of tastes in addition to perfumery.

Ylang-ylang (*Cananga odorata*)

- ✓ Flowers from *Cananga odorata* (*C. odorata*) or ylang-ylang which is native to the islands of

Cananga odorata

Indian Ocean and tropical Asia.

- ✓ It is among the most often used essential oils.
- ✓ Widely used due to their sweetly fragrant flowers.
- ✓ The oil comprised of p-methyl anisole, linalool, methyl benzoate, benzyl acetate, geranyl acetate etc.

Carnation

Carnation

- ✓ Carnation fragrances have been included into soaps, talcum powder, hair oils, and brilliantines.
- ✓ Carnation is mostly utilized as a fragrance modifier in contemporary cosmetic perfumes to provide a warm, spicy floral scent.
- ✓ A key ingredient in scents for both men and women is the smell of carnations.