



Research article

Amaryllids of Andhra Pradesh, India

R. Prameela^{1*}, M. Venkaiah², J. Swamy³ and J. Prakasarao²

¹M. R. College for Women, Vizianagaram, Andhra Pradesh, India

²Department of Botany, Andhra University, Visakhapatnam, Andhra Pradesh, India

³Botanical Survey of India, Deccan Regional Centre, Hyderabad, Telangana, India

*Corresponding Author: prameelachris@yahoo.com

[Accepted: 25 October 2020]

Abstract: Amaryllidaceae plants are collectively called as Amaryllids, majority are ornamentals, beyond beauty they also boon for perfume, vegetables and medicine. They are playing a key role in horticulture as ornamental plants, used for decoration in all kinds of ceremonies and florists often used in bouquets. The present paper deals with 19 species belonging to 10 genera and key to the species, brief description, Flowering and fruiting period, locality, economic importance, photographs etc. were provided.

Keywords: Bulbous plants - Horticulture - Ornamental plants - Medicinal plants.

[Cite as: Prameela R, Venkaiah M, Swamy J & Prakasarao J (2020) Amaryllids of Andhra Pradesh, India. *Tropical Plant Research* 7(3): 594–603]

INTRODUCTION

‘A merry heart doeth good medicine’ (Proverb of Solomon), “where flowers bloom, so does hope” (Lady Bird Johnson), “Flowers always make people better, and more helpful; they are sunshine, food and medicine for the soul” (Luther Burbank). All these sayings are aptly for Amaryllids. Amaryllidaceae plants are collectively called as Amaryllids. Aesthetic point of view, they are popular ornamental plants and they are playing a key role in horticulture as an ornamentals, beyond beauty they also boon for perfume, vegetables, medicine and used for decoration in all kinds of ceremonies and florists often used in bouquets.

The family Amaryllidaceae is widely distributed in tropical to sub-tropical regions of the world occupy many different habitats includes seasonally dry places, ephemeral pools, understory of forests and rivers. South America and South Africa are the source for highest diversity and the Mediterranean region being the source of numerous horticultural introductions, has only eight genera (Meerow *et al.* 2006). Amaryllidaceae J. St. Hill, nom. cons. which was originally created in 1805, now it contains 2,258 species belongs to 80 genera (www.theplantlist.org; WFO 2020). In India the family is represented by 5 genera, 24 species and 3 varieties and 1 form (Karthikeyan *et al.* 1989). In Andhra Pradesh, the family is represented by 2 genera and 5 species (Pullaiah 2018).

Salient features of the Amaryllids are bulbous plants, umbellate flowers on naked scape, perianth lobes six (3+3), six stamens, inferior ovary (except in *Allium* species) tricarpeal and trilobular ovary. There is no updated information on amaryllids of Andhra Pradesh and the present study aims that to focus on occurrence of the diversity from both wild and introduced.

MATERIALS AND METHODS

Study area

Andhra Pradesh is one of the largest states in India, with an area of 160,205 km² and bordered by Telangana, Odisha, Tamil Nadu and Karnataka. It has a network of 13 Wildlife Sanctuaries and 2 National parks and one Tiger reserve. There are 32 cities, from 13 districts in Andhra Pradesh, having plenty of forests, croplands, orchards and nurseries. Andhra Pradesh blessed with Green wealth. Godavari and Krishna are the major rivers in the state. The State has wide and varied vegetation types enriched by a variety of flora and fauna. Andhra Pradesh is being located strategically in the eastern peninsula of the Indian sub-continent has representatives of the magnificent native plant and animal life. Its varied topography ranging from the hills of Eastern Ghats and

Nallamala forest to the shores of Bay of Bengal and various rivers supports diverse ecotypes, which in turn support a rich diversity of flora and fauna.



Figure 1. A, *Allium cepa* L.; B, *Crinum asiaticum* L.; C–D, *Crinum latifolium* L.; E–F, *Eucharis* × *grandiflora* Planch. & Linden; G, *Hippeastrum correiense* (Bury) Worsley; H, *Pancratium longiflorum* Roxb. ex Ker Gawl.; I, *Proiphys amboinensis* (L.) Herb.; J, *Rhodophiala rosea* (Sweet) Traub; K, *Scadoxus multiflorus* (Martyn) Raf.; L, *Zephyranthes candida* (Lindl.) Herb.; M, *Zephyranthes carinata* Herb.; N, *Zephyranthes citrina* Baker; O, *Zephyranthes rosea* Lindl.

Data collection

While exploring the amaryllids of Andhra Pradesh during 2014–2019, the first author was collected the plants from both wild and cultivated areas. All the plants are identified up to species level using floras and literature (Hooker 1894, Gamble 1935, Kapoor & Sharma 1993, Sharma *et al.* 1996, Konemann 1999, Pullaiah 2018). Some of the plants are introduced into the M.R. College for Women, Fort Campus garden and some of www.tropicalplantresearch.com

the specimens are prepared herbarium and deposited in Andhra University Herbarium. Details of accepted scientific name, local name, brief description, flowering and fruiting period, locality and economical importance or uses were provided for each species. Key to the genus and species also provided and of the species photographs are provided to facilitate identification (Fig. 1).

RESULTS AND DISCUSSION

A total of 19 species belonging to 10 genera were reported from the Andhra Pradesh. *Crinum* and *Zephyranthes* are the dominant genera with four species each, *Allium*, *Hymenocallis* and *Pancratium* are with 2 species and remaining genera *Eucharis*, *Hippeastrum*, *Proiphys*, *Rhodophiala* and *Scadoxus* only with single species were reported. Among the 19 species only *Pancratium* species and *Crinum viviparum* (Lam.) R. Ansari & V.J. Nair are naturally growing in the hills of the study area, *Allium* species are cultivating as vegetables and other plants are cultivating in the public parks, home gardens and institute gardens as an ornamental plants.

Systematic treatment

All the plants were provided in alphabetical order with an accepted name and provided key for both genus and species. Details of scientific name, local names, description, flowering and fruiting period, locality and uses were provided for each species.

Key to the genera

1 Ovary superior	<i>Allium</i>
- Ovary Inferior	2
2 Corona absent	3
- Corona present	5
3 Plants robust with large bulb, Scape 15–20 flowered	<i>Crinum</i>
- Plants herbaceous and small, scape 1–40 flowers	4
4 Leaves large, umbel many flowered, Ovules 3	<i>Scadoxus</i>
- Leaves grass like, flowers solitary, Ovules many	<i>Zephyranthus</i>
5 Corona scaly	6
- Corona petaloid	7
6 Stamens shorter than perianth lobes	<i>Hippeastrum</i>
- Stamens longer than perianth lobes	<i>Rhodophiala</i>
7 Petals ovate or obovate, leaves petiolate, broad or round	8
- petals linear, leaves sessile, linear-lanceolate	9
8 Scape 5–6 flowers, corona greenish white, ovules many	<i>Eucharis</i>
- Scape bearing 6–10 flowers, corona white, ovules 3	<i>Proiphys</i>
9 Small herbs, leaves oblanceolate, ovules many, axial placentation	<i>Pancratium</i>
- Large herbs, leaves large, ovules few, basal placentation	<i>Hymenocallis</i>

Allium L.

Linnaeus first described the genus *Allium* in 1753. In Greek, the word ‘aleo’ meaning ‘to avoid’ by reason of the smell of garlic. The genus consists of 977 species and its native range is temperate and subtropical Northern Hemisphere. Of these many of the species are economically important as crops, or garden vegetables and increasing number of species are important as ornamental plants. The genus is characterised by a petaloid perennial herb with a typical parallel narrow leaves with rhizomatous or bulbous stems. The flowers are usually petaloid with six free tepals in two whorls, six stamens which may be free or jointed, superior ovary with 0–6 crests, cymose-umbel inflorescence, bilateral pollen, and capsule fruit.

Key to the species

1 Leaves fistular; bulb tunicated	<i>A. cepa</i>
- Leaves flat; bulb scaly, cloves like	<i>A. sativum</i>

Allium cepa L. [Fig. 1A]

Perennial herbs, up to 50 cm high; rootstock bulbous; bulbs tunicate; scales succulent, pink or white, long neck from the bulb, 4–5 leaves developed on neck. Leaves fistular, up to 40 cm long, acute at apex, glaucous; leaf sheath white membranous. Flowers whitish-green arranged in simple umbel, on long peduncle; peduncle fistular, stronger than leaves. Bracts spathaceous, membranous. Perianth lobes 6, white with one green middle stripe. Stamens 6, outer 3 longer than the perianth, opposite to the perianth; inner 3, shorter than the perianth, attached to the membrane. Ovary superior, tri-carpellary, unilocular, 2-ovules in each locule. Capsules globose-

trigonus. Seeds angular, black.

Flowering & Fruiting: January–April.

Common Name: Onion, Ulli.

Locality: Commonly cultivated in the study area.

Uses: Leaves and bulbs used in vegetables and preparation spices and condiments. Roasted onions are applied as poultice. Onions are used as stimulant and diuretic and used for dysentery.

Allium sativum L.

Perennial herbs up to 40 cm high; rootstock bulbous; the bulb is odiferous and contains outer layers of thin sheathing leaves surrounding an inner sheath that encloses the clove. Often the bulb contains 10 to 20 cloves. Leaves aromatic, linear, flat, grass like green leaves; sheaths about half as long as blade. Flowers whitish-pink arranged umbels. Bracts spathaceous, membranous, long-beaked. Perianth white or pink, lanceolate, acuminate. Stamens 6, shorter than the perianth. Capsules oblong-obovoid. Seeds many, black, angular.

Flowering & Fruiting: January–May.

Common Name: Garlic.

Locality: Rarely cultivated in the study area.

Uses: Bulbs are used in preparation of curries and chutneys and also used as antimicrobial, antifungal, anthelmintic, antioxidant, cardiac tonic, carminative, and expectorant.

Crinum L.

The name *Crinum* is derived from the Greek word 'krinon' which means a lily. It is native to warm and tropical parts of the Old and the New World. *Crinum* commonly known as *Crinum* lily and Poison Bulb. Stout herbs, large bulb, leaves fleshy, elongate and ensiform, Scape solid, flowers large in umbels subtended by 2 bracts. Perianth funnel or salver shaped, tube long, tepals 6, linear to oblong. Stamens 6, filaments free, filiform, erect, spreading, anthers dorsifixed, versatile. Ovary 3-celled.

Key to the species

- 1 Flowers white, Perianth lobes linear 2
- Flowers pinkish white or white, Perianth lobes ovate lanceolate 3
- 2 Umbel with dense (30–35) flowered *C. asiaticum*
- Umbel with 10 flowered *C. viviparum*
- 3 Flowers pinkish white *C. latifolium*
- Flowers white *C. moorei*

Crinum asiaticum L.

[Fig. 1B]

Large bulbous plants, leaves linear-lanceolate, 50–70 cm long, flowers umbellate, numerous, scented, bisexual; perianth lobe 6, linear, white, stamens 6, opposite to the petals shorter than tepals, filaments upper part white, lower part purple, anthers brown, long, versatile, ditheous; ovary inferior, tricarpeal, trilobular, 2 ovules in each cell.

Flowering & Fruiting: All seasons.

Common Name: Chengalva, Poion bulb, giant crinum lily.

Collection No: RP 17437.

Locality: Common in public parks.

Uses: Bulbs are used for urinary disorders, biliousness and leaves and roots are used as diaphoretic.

Crinum latifolium L.

[Fig. 1C–D]

Bulbs large, white, with long neck; leaves radical, numerous, lorate, long, broad, margin entire; inflorescence umbel, appears along with leaves, scape naked, developed on the neck of the bulb, as long as the leaves, unbranched, compressed and succulent, green in colour, 30–50 cm long, umbel bears 8–10 flowers, fragrant; pinkish white, large showy, bisexual, short pedicel, perianth tube long, lobes 6, broad, ovate lanceolate, petaloid; tepals white, pink stripe at middle, tip cuspidate; stamens 6, attached to the mouth of the corolla tube, filaments long white, slender, inserted, versatile, shorter than the petals, and style, anthers ditheous, ovary inferior, tricarpeal, trilobular; 2 ovules in each locule, style very long, pink as long as perianth lobes, slender, stigma trifid or tri lobed, fruit berry, 4-seeds, seeds large.

Flowering & Fruiting: June–September.

Common Name: Pink striped trumpet lily.

www.tropicalplantresearch.com

Collection No: RP 0654 AUV.

Locality: Rare in G.Madugula, Andhra University Campus and M.R. Collage for Women.

Uses: Bulbs used in rheumatism; leaf juice treat for ear-ache.

Crinum moorei Hook.f.

Bulbs large, white,; leaves, lorate, long, broad, margin entire; inflorescence umbel, appears along with leaves, scape naked, as long as the leaves, unbranched, compressed and succulent, green in colour, 30–50 cm long, umbel bears 8–10 flowers, fragrant; white, large showy, bisexual, short pedicel, perianth tube long, lobes 6, broad, ovate lanceolate, petaloid; tepals white, tip cuspidate; stamens 6, attached to the mouth of the corolla tube, filaments long white, slender, inserted, versatile, shorter than the petals, and style, anthers ditheous, ovary inferior, tricarpellary, trilocular; 2 ovules in each locule, style very long, pink as long as perianth lobes, slender, stigma trifold or tri lobed, fruit berry, 4-seeds, seeds large.

Flowering & Fruiting: May–July.

Common Name: Natal Lily, Long-neck Swamp Lily, Moor's Crinum.

Locality: Cultivating in M.R. Collage for Women.

Uses: Ornamental Plants for their flowers.

Crinum viviparum (Lam.) R. Ansari & V.J. Nair

Bulb ovoid, neck 6 inch long, leaves linear, deeply channeled, obtuse, margins smooth, scapes from outer leaf axils, umbels upto 10 flowered, bracts long 3 inch long, pedicels very short, flowers white, stems bright red.

Flowering & Fruiting: June–December.

Common Name: River Crinum Lily.

Locality: Occasionally seen in aquatic regions.

Uses: Bulbs diaphoretic and emollient, used for burns, carbuncles.

Eucharis J.E.Planchon

The genus *Eucharis* native to Central America and South America and some species are naturalized in Mexico, West Indies and tropical islands. In Greek 'eu' means well or good, and 'charis', an attraction, alluding to the grace and beauty of the flowers.

Eucharis × grandiflora Planch. & Linden

[Fig. 1E-F]

Small bulbous ever green perennials, bulb 5 cm in diameter, white, bitter in taste; leaves 2–3, petiole succulent 30 cm long, 0.8 cm wide, tri angular, leaf lamina 35–40 cm long, 8–14 cm wide, leathery and shiny; scape 60–65 cm long succulent, compressed, dark green, bears 5–7 umbellate flowers of white and showy with staminal corona; involucral bracts 3; flower bract single, green. Lanceolate; pedicel short 1.5 cm long, green; corolla tube slender, hallow, white, 5 cm long, petals spreading, 3.5 cm × 4.0 cm, ovate, pure white; corona 1.5 cm × 2.5 cm, 12 toothed, thick, inside of the corona green colour; stamens 6, filaments short, 1 cm long, anthers 0.5 cm long, white, pollen ellipsoid, reticulate; ovary inferior, tricarpellary, trilocular, axile placentation, ovules many, style slender 5.5 cm long.

Flowering & Fruiting: December–March.

Common Name: Amazon lily.

Collection No: RP 17535 AUV.

Locality: Rarely cultivating the home gardens in Vizianagaram.

Uses: Ornamental plant, grown commercially for the cut flower trade.

***Hippeastrum* Herb.**

The name *Hippeastrum* given to it by William Herbert, means "Knight Star". Native to South America. Cultivars of *Hippeastrum* are popular indoor ornamental plants. Though *Hippeastrum* species are popular ornamental plants, they contain some medicinally important isoquinoline alkaloids, which are used as anti-parasitic, anti-depressant, anti-convulsant and anxiolytic properties.

Hippeastrum correiense (Bury) Worsley

[Fig. 1G]

Bulbous plants, bulb black; leaves 2–4, strap like, 25–35 cm long, 3–4 cm width, along with flowers; Inflorescence is an umbel; scape 40 cm long, cylindrical, fistular and bears 2–4 flowers, flowers 10–12 cm long, showy, red in colour, not fragrant; involucral bracts free to the base, 5–6 cm long, 0.8 cm width, lanceolate, bracteolate, bracteole 4 cm long, linear; pedicel 3.0–3.5 cm long, tepals 6, 8–9 cm long, 3.0–3.5 cm width, outer

3 are broader than inner 3, outer tepals ends with a pointed tip, corona very small, scaly; stamens 6, filaments free, 6.0–6.5 cm long, lower half white, upper half red, anthers dithecous, dorsifixed, longitudinal dehiscence; inferior ovary, 1.0–1.2 cm long, 0.5 cm width, tricarpeal, trilobular, ovules numerous in each locule.

Flowering & Fruiting: April–July.

Common Name: Amazon lily.

Collection No: RP 17585 AUV.

Locality: Common in public parks and Andhra University Botanical Garden.

Uses: It is an ornamental plant.

***Hymenocallis* Salisb**

The name *Hymenocallis* was given by Richard Anthony Salisbury in 1812, which is derived from the Greek words ‘hymen’ meaning ‘membrane’, and ‘kalos’ meaning ‘beautiful’. It refers to the curious shape of the flowers, which consists of six narrow, curved petals attached to a shallow cup that is formed from the fused stamens. The effect is of a spidery daffodil or lily, thus clearing up the general name spider lily. Formerly it was placed in the genus *Pancratium*. R.A Salisbury separated this genus from *Pancratium*, because of only two seeds in each locule. *Hymenocallis* species are native to south eastern United States, Mexico, Central America, the Caribbean, and northern South America.

Key to the species

1 Perianth tube 12 cm long, filaments 6.5 cm long *H. littoralis*
- Perianth tube 9 cm long, filaments 4.5 cm long *H. latifolia*

Hymenocallis latifolia (Mill.) M.Roem.

Bulbous, bulbs large, leaves radical, broad long, linear lanceolate; scape as long as leaves, thick; scape bears 12–14 flowers, fragrant, sessile, bisexual, perianth tube 9 cm long, green, lobes petaloid, white, perianth lobes 6, linear, 9 cm long; stamens 6, staminal corona 2 cm long, white, filaments longer than the corona 4 cm, green; anthers 1.5 cm long, yellow, dorsifixed, dithecous; ovary tricarpeal, trilobular, 2-ovules in each locule, basal placentation; style longer than the filaments and petals, upto 10 cm long, green; stigma rounded, flowers bloom at evening.

Flowering & Fruiting: July–December.

Common Name: Perfumed Spider lily.

Collection No: PR 17585 AUV.

Locality: Commonly seen in public parks.

Uses: It is used for bronchial problems and also used as cardio tonic, diuretic and expectorant.

Hymenocallis littoralis (Jacq.) Salisb.

Underground stems, bulbous, leaves radical, 2–3, long sword shape, tip round or subacute; scape succulent, flat, green, longer than the leaves; inflorescence umbel, bears 8–9 flowers, bracteate; bract brown; flowers sessile or subsessile; bisexual, perianth tube 12 cm long, lobes linear 10 cm long, white; corona white, 2 cm long; stamens 6, filaments long 6.5 cm long, base white, upper part green; anthers yellow or orange, versatile, 1.7 cm long; ovary tricarpeal, trilobular; 2–4 ovules in each locule. Basal placentation

Flowering & Fruiting: August–October.

Common Name: Spider lily.

Locality: Cultivating in Vizianagaram District.

Uses: Ornamental plant, flowers used in perfumes, bulbs contain lycorine and tazettine.

***Pancratium* L.**

The name *Pancratium* is derived from the Greek, which means ‘all-strength’, probably referring to the strength of a plant that can tolerate extreme climates. *Pancratium* species are commonly grown in dry and sandy areas. It is native to Africa and Eurasia. Coated bulb with neck, leaves linear lanceolate. Flowers white large 1–3 on a solid scape, subtended by membranous bracts. Perianth lobes 6, narrow. Stamens 6, filaments filiform, united below by a coronal membrane into a toothed cup, anthers dorsifixed, versatile. Ovary 3 celled, ovules many, style filiform

Key to the species

1 Scape bears 2 to 8 flowers *P. triflorum*
- Scape bears single flower *P. longiflorum*

Pancratium longiflorum Roxb. ex Ker Gawl.

[Fig. 1H]

Small bulbous herbs, bulbs black in color with 8 cm long neck, neck brown, slightly curved; leaves 3–6, linear-lanceolate, 30–35 cm long; flowers along with leaves, single flower arise from the bulb, white; scape 8 cm long, bract 4cm long, green, forked; perianth tube green, cylindrical, 10 cm long, channeled; perianth segments mucronate or cuspidate, 6.5 cm long, outside middle green stripe present; corona bell shaped, 4 cm long, 12 teeth, each teeth 1 cm long; corona longer than the filaments; stamens 6, filaments 1.2 cm long, white, slightly curved; anther 1cm long, yellow, introrse, pollen ovoid, smooth; ovary situated within the bract, trilocular, axile placentation, two ovules in each locule; style longer than the filaments, green, stigma globose; flowers highly fragrant, blooms in the evening.

Flowering & Fruiting: May–September.

Common Name: Long Flowered Spider Lily.

Collection No: RP 17496 AUV.

Locality: Occasionally seen the hills of Viziaganaram and Visakhapatnam District.

Uses: Ornamental plant, growing for scented flowers.

Pancratium triflorum Roxb.

A herbaceous, bulbous plant, bulb ovoid, white; Leaves 5–7, radical, coriaceous, 20–25 cm long, 2.0–2.5 cm wide; Inflorescence umbel along with leaves, 2–8 flowered, flowers fragrant; scape shorter than the leaves, perianth tube 2.5 cm long, perianth lobes recurved 5.5 cm long, 1.8 cm wide, linear, tip mucronate, staminal corona white, 2 cm long, 2-toothed, tooth 0.8 cm long, corona attached to the petal; filaments white recurved, shorter than the petals, stamens 6, dorsifixed, anthers small, white, ovary green, trilocular, style longer than the filaments.

Flowering & Fruiting: May–July.

Common Name: Forest Spider Lily.

Locality: Occasionally seen the hills of Visakhapatnam hills.

Uses: used as a substitute and adulterant of Indian Squill, a drug used as a cardiogenic, diuretic, and expectorant, prescribed also for bronchial troubles.

***Proiphys* Herb**

The genus *Proiphys* is perennial, herbaceous, bulbous plants. It includes 5 accepted species which are native to Southeast Asia, papuasia and Australia.

Proiphys amboinensis (L.) Herb.

[Fig. 1I]

A small perennial bulbous plant; leaves long petioled, lamina broad and round; inflorescence as long as petioles or longer, umbel contains 6 to 10 white flowers; scape 60 cm long, succulent, green in colour; bract 12–15 cm long and bracteolate; flowers pedicellate, pedicel 1.5–1.8 cm long; corolla tube 2 cm long, tepals 6, 2.5–2.8 cm long, white, outer 3 tepals linear lanceolate, with green mid rib, inner 3 petals ovate lanceolate, without midrib; stamens 6, attached to the base of the petals, filaments flat at the base, white, anthers yellow, basifixed; ovary inferior, green, 0.8–1.0 cm, trilocular, axile placentation, ovules 3. Propagation through bulbs.

Flowering & Fruiting: Nov–December.

Common Name: Cardwell lily, Brisbane lily.

Locality: Rarely growing in home gardens.

Uses: Ornamental plant.

Rhodophiala rosea (Sweet) Traub.

[Fig. 1J]

Bulbous plants, bulb black; leaves 2–4, strap like, 25–35 cm long, 3–4 cm width, along with flowers; Inflorescence is an umbel; scape 40 cm long, cylindrical, hollow and bears 2–4 flowers, flowers 10–12 cm long, showy, orange in colour, not fragrant; involucral bracts free to the base, 5–6 cm long, 0.8 cm width, lanceolate, bracteolate, bracteole 4 cm long, linear; pedicel 3.0–3.5 cm long, tepals 6, 8–9 cm long, 3.0–3.5 cm width, linear lanceolate, corona very small, scaly; stamens 6, filaments free, 6.0–6.5 cm long, orange, anthers dithecous, dorsifixed, longitudinal dehiscence; inferior ovary, 1.0–1.2 cm long, 0.5 cm width, trilocular, ovules numerous in each locule. Style longer than the filaments, stigma simple.

Flowering & Fruiting: April–June.

Collection No: RP 0675 AUV.

Locality: Commonly seen in the public parks and Andhra University Botanical Garden.

Uses: Ornamental plant.

Scadoxus Raf.

Scadoxus species are native to Africa and Arabia. The genus was given its name in 1838 by Constantine Samuel Rafinesque, he glossed the name as ‘umb.glor’, which means ‘glorious umbel’. In Greek Doxus meaning ‘Glory’ or ‘Splendor’. The prefix Sca may be derived from the Greek skia significance ‘shade’ (sciadon is the Greek equivalent of the Latin umbella, ‘umbrella’, used of flower heads in the form of umbels).

Scadoxus multiflorus (Martyn) Raf.

[Fig. 1K]

Bulbous plants, bulbs are white, dormant in winter; leaves radical, broad, brilliant green leaves, the leaves are hysteranthous (develop after flowering), leaves 3–4, sessile, ovate lanceolate, margin smooth; inflorescence umbel, bears numerous red flowers, scape 30–40 cm long, succulent, compressed; flowers bracteate, pedicel slender, 2.5 cm long, red in young flower, green in faded flower; perianth tube shorter than the lobes, 0.5 cm long, red, tepals 6, linear, 2 cm long, red; stamens 6, epipetalous, filaments red, 2.5 cm long, anthers very small, yellow, ditheous, dorsifixed; ovary green in colour, 0.1 cm, tricarpeal, trilobular, ovules 3, solitary in each locule, axile placentation, there is a gland like structure in between perianth tube and ovary. Propagation only through bulbs.

Flowering & Fruiting: May–September.

Common Name: Blood Lily, Fireball.

Collection No: RP 17483 AUV.

Locality: Commonly growing in home gardens.

Uses: The bulb is used to treat dropsy, scabies and poorly healing wounds. On the other hand bulbs are poisonous, plant sap is supposed to cause skin irritation, swelling of lips and tongue.

Zephyranthes Herb

The word ‘Zephyrus’ name is derived from the Greek god of the west wind and anthos meaning flower. *Zephyranthes* species are native to Western Hemisphere and widely cultivated as ornamentals. There are 70 recognized species in this genus. Common names are Zephyr lily, rain lily, fairy lily, magic lily and atamosco lily, Thunder flower. Commonly all the *Zephyranthes* species are small bulbous plants, grass like leaves, and solitary flowers.

Key to the species

- | | |
|--|--------------------|
| 1 Style shorter than filaments, flowers yellow | <i>Z. citrina</i> |
| - Style longer than filaments, flowers white or pink | 2 |
| 2 Stigma trifid, white flowers | <i>Z. candida</i> |
| - Stigma 4 fid, pink flowers | 3 |
| 3 Anthers shorter and flowers small | <i>Z. rosea</i> |
| 3 Anthers longer and flowers big | <i>Z. carinata</i> |

Zephyranthes candida (Lindl.) Herb.

[Fig. 1L]

Bulbous plants, bulb small, black, neck 3–4 cm long; leaves 3–4, linear, tip acute, 40–45 cm long, 0.6–0.8 cm wide; scape slender, 28 cm long, cylindrical and hollow, round, green, single flower, white; pedicel 4.3 cm long, fistular; bract 2.9 cm long, membranous, forked; perianth lobes 6, white, 4.2 cm long, 1.1 cm width, lower part of the lobes are green; stamens 6 (3+3) in two heights, outer 3 shorter, 1.2 cm long, inner 3 longer 2 cm long, filaments white anthers ditheous, versatile, yellow, anthers are also in two sizes, 0.5 cm and 1 cm long; ovary inferior, not covered by bract, 0.2 cm long, 0.2 cm width, tricarpeal, trilobular, axile placentation, numerous ovules; style longer than filaments, 3.1 cm long; stigma trifid; Seeds black. Plants propagated by bulbs and seeds.

Flowering & Fruiting: April–July.

Common Name: Rain lily.

Collection No: RP 17521 AUV.

Locality: Commonly seen in public parks, home gardens.

Uses: Leaves are used for diabetes and contain lycorine, haemanthidine, nerinine, tazettine and zephyranthine.

Zephyranthes carinata Herb.

[Fig. 1M]

Bulbous plants, bulb small, 3 cm long, 3 cm diam, neck 4–5 cm long; leaves 3–4, linear, 60–62 cm long,

0.6–0.8 cm wide, tip acute; scape slender, 28 cm long, cylindrical and hollow, green, single flowered, flowers pink; pedicel 3 cm long, bract 2.8 cm long, membranous, forked, pinkish; perianth tube 2.2 cm long; perianth lobes 6, pinkish, 6 cm long, 1.8 cm width; stamens 6 (3+3) in two heights, outer 3 shorter, 2.2 cm long, inner 3 long 2.4 cm long, filaments white, anthers ditheous, versatile, yellow; versatile; ovary inferior, 0.3 cm long, 0.2 cm wide, tricarpellry, trilocular, axile placentation, numerous ovules; style longer than filaments, 5 cm long; stigma 4-fid; Seeds black. Plants propagated by bulbs and seeds.

Flowering & Fruiting: June–September.

Common Name: Rose pink, zephyr lily or pink rain lily.

Collection No: RP 17559 AUV.

Locality: Rarely seen in home gardens.

Uses: Yield alkaloids lycorine, haemanthamine, galanthine and tazettine.

Zephyranthes citrina Baker

[Fig. 1N]

Bulbous plants, bulb black, neck 5 cm long, having many raphides; leaves 3–4, linear, 40–45 cm long, 0.5 cm wide, tip acute; scape slender, 25–30 cm long, compressed and hollow, green, single flowered, flowers yellow; pedicel 3 cm long, bract 2 cm long, membranous, forked; perianth tube very small, 0.3 cm long; perianth lobes 6, yellow, 2.2 cm long, 0.4 cm wide; stamens 6 (3+3) in two heights, outer 3 stamens (1.2 cm long) are opposite to inner perianth lobes and inner 3 stamens (1.1 cm long) are opposite to outer perianth lobes, anthers linear, ditheous, introrse, versatile and yellow; ovary inferior, 0.1 cm long, 0.1 cm width, tricarpellry, trilocular, axile placentation, numerous ovules; style shorter than filaments 0.9–1.0 cm long, stigma trifid; Seeds black. Plants propagated by bulbs and seeds.

Flowering & Fruiting: May–August.

Common Name: Citron zephyr lily or yellow rain lily.

Collection No: RP 17520 AUV.

Locality: Commonly seen in public parks, home gardens.

Uses: It is used for fever, general weakness and the plant have some important compounds like alkaloids lycorine, haemanthamine, crinidine, narcissidine, nerinine and tazettine.

Zephyranthes rosea Lindl.

[Fig. 1O]

Bulbous small herb, bulb neck 5 cm long, black; leaves 2–3, grass like tip rounded, 28–30 cm long, 0.5 cm wide; Scape hollow, cylindrical, bears single pink flower; bract membranous; perianth lobes 6 or 8 in two whorls, outer 3 ovate lanceolate, with pointed tip and inner 3 linear lanceolate with acute or round tip; stamens 6 or 8, introrse, all are same height, filaments half the length of the perianth lobes, white, anthers ditheous, longitudinal dehiscence, yellow; ovary inferior, tricarpellary, trilocular, axile placentation, ovules many. Plants propagated by bulbs and seeds.

Flowering & Fruiting: Aug–Dec.

Common Name: Cuban zephyrlily, rosy rain lily, rose zephyr lily or the pink rain lily.

Locality: Commonly seen in public parks, home gardens.

Uses: Yield alkaloids lycorine, and galathine.



Figure 2. Lily moth caterpillar (*Polytela gloriosae* Fabricius).

CONCLUSIONS

Amaryllids are avail oneself of food, beauty and amiability. Amaryllids are good soil binders and they prevent soil erosion and also suitable for sea cost beautification. Gigantic herbs like *Crinum* sp., *Hymenocallis* sp., etc. are suitable for roadside plantation to create aesthetic sense. Amaryllids can easily propagate by bulbs and less affected by diseases but only threat is from lilly caterpillers (*Polytela gloriosae* Fabricius) (Fig. 2), they feed total leaves and left bulb. With little attempt Amaryllids can give more beauty in the Indian gardens. It is suggested that Indian gardens should maintain large amount of amaryllids to create aesthetic and also to attract more public. Research should be done in the aspect of find out natural populations, ethano medicinal practices, find the important alkaloids, conservation status, cultivation practices etc. of amaryllids.

ACKNOWLEDGEMENTS

Authors are thankful to Dr. Aryasomayajula Saroja, Reader in Politics, M.R. College for Women, for provided some ornamental amaryllids from home garden. First author is grateful to her husband Mr. Babji Valluri, Asst. Prof. Department of Chemistry, M.R. College (A), Vizianagaram for his continuous support and encouragement.

REFERENCES

- Gamble JS (1935) *Flora of the Presidency of Madras, Vol III*. London (Reprinted in 1957).
- Hooker JD (1894) *Flora of British India, Vol VI*. L. Reeve & Co., London, p. 280–286.
- Kapoor SL & Sharma AN (1993) *House Plants*. Vatikaprakashan.
- Karhikeyan S, Jain SK, Nayar MP & Sanjappa M (1989) *Florae Indicae Enumeratio: Monocotyledonae*. Botanical Survey of India, Culcutta, pp. 3–4.
- Konemann (1999) *Botanica*. The illustrated A-Z of over 10,000 garden plants and how to cultivate them.
- Meerow AW, Francisco-Ortega J, Kuhn DN & Schnell RJ (2006) Phylogenetic relationships and biogeography within the Eurasian clade of Amaryllidaceae based on plastid ndhF and nrDNA ITS sequences: Lineage sorting in a reticulate area. *Systematic Botany* 31: 42–60.
- Pullaiah T (2018) *Flora of Andhra Pradesh (India), Vol 5*. Scientific Publishers, Jodhpur.
- Sharma BD, Karhikeyan S & Singh NP (1996) *Flora of Maharashtra state, Monocotyledons*. Botanical Survey of India, Ministry of Environment. Government of India.
- WFO (2020) World Flora Online. Available from: <http://www.worldfloraonline.org/-taxon/wfo-4000027860>. (accessed: 31 Oct. 2020).