

FIRST RECORD OF CRITICAL ENDANGERED PLANT (*Gloriosa superba* L.) AT VERGE OF SAI RIVER, JAUNPUR, UTTAR PRADESH, INDIA

^{1,2}Rajkumar S. Yadav and ²Ishan Y. Pandya

¹Department of Life Sciences, Hemchandracharya North Gujarat (HNGU) University, Patan, India

²Gujarat Ecological Education and Research (GEER) Foundation, Department of Environment and Forests, Gandhinagar-382007, India

(E-mail: rajbot99@gmail.com¹, genomes.world37@gmail.com²)

ABSTRACT

Present study deals with the existence of *Gloriosa superba* L. in tropical habitat which is yet unexplored in Jaunpur District of Uttar Pradesh. It is critical endangered tropical plant species as per IUCN Guideline belonging in Liliaceae family of Monocotyledon plants according to G. Bentham and J.D. Hooker classification. The study was carried out during the winter season. *Gloriosa superba* L. occurrence was recorded in three distinct locations of study area at Uttar Pradesh. Plant is useful towards the rheumatism and gout diseases.

KEYWORDS: Critical Endangered Plant, *Gloriosa superba* L., Khaparaha, Sai River

INTRODUCTION

Name of the *Gloriosa superba* L. is derived from the word “Glorious” which means handsome and Superba from the word “Superb” means impressive or royal kind. It is known as ‘Malabar glory lily’ in English, in Hindi as ‘Kalihari’, in Sanskrit as ‘Agnisikha’ and its trade name is ‘Glory lily’. (Pulliah, 2002). Glory lily has been traditionally claimed for a large number of pharmacological actions and *ayurvedic* medicinal uses. Indiscriminate and imprudent exploitation of the natural resources by mankind is accountable for the current status of this plant (Jana and Shekhawat, 2011). It is a valuable tropical medicinal plant; all of its parts are diversely used in indigenous systems of medicine. The local communities exploit the plant extensively for medicinal purposes and as barter from the local and foreign traders. Leaves are used to treat ulcers, piles and expel placenta, and seeds are used to cure cancer related diseases (Evans et al., 1981). The plant grows in sandy-loam soil in the mixed deciduous forests in sunny positions. It is very tolerant of nutrient-poor soils. It occurs in thickets, forest edges and boundaries of cultivated areas in warm countries up to a height of 2530 m. It is also widely grown as an ornamental plant in cool temperate countries under glass or in conservatories (Neuwinger, 1994). It is a native of tropical Africa and is now growing in many parts of tropical Asia including India, Burma, Malaysia and Srilanka (Jana and Shekhawat, 2011). *Gloriosa superba* L. is generally found in western parts of Tamilnadu and Kerala, India. It is critically endangered plant hence IUCN has placed it in “red data book” (Mishra et al., 2011)

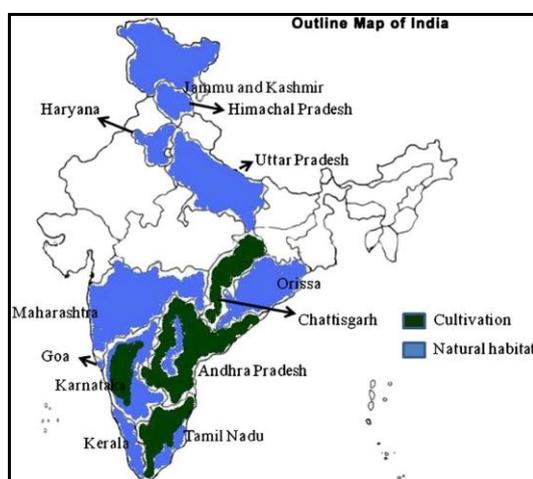


Figure 1. Distribution of *G. superba* in India

Map Source: Jana and Shekhawat, 2011

Figure 1 is showing cultivation and natural habitat of species. Almost half of the geographical area of the country is having favorable habitat to grow this plant and its cultivation is appreciated by many State's like Chattisgarh, Andhra Pradesh Karnataka and Tamil Nadu etc.

Present study deals with first spotted plant of *Gloriosa superba* L. in Khaparaha village of Jaunpur District of Uttar Pradesh State in India. *Gloriosa superba* L. was recorded wild habitat in this area. Local communities of studied area aren't aware about the economical and medicinal significance of *Gloriosa superba* L. plant, while the plant has been a source of medicine right from the ancient time. Number of books and articles has been written so far on the medicinal and other values of this plant (Mishra, 2011). Therefore, the objective of the present study is to inform about the existence of this species in studied village vegetation and its in-situ and ex-situ biodiversity conservation is required.

STUDY AREA

First record of *Gloriosa superba* L. was done in Khaparaha village. It is a non-forest village and popular for the presence of tremendous floral diversity supported by Evergreen Sai River and rich in soil fertility, located at Longitude of 25 ° 47' 38" East and Latitude of 82 ° 30' 14" North in Jaunpur District of Uttar Pradesh. Total Geographical area of Jaunpur District is 399.71 ha, out of which 0.063ha forest area and 279.61ha of cultivated land area. 41.4% salty loam/clay loam soil, 34.21% Loam sandy and alluvial soil, and 24.34% sandy soils are occurred of total geographical area. Khaparaha lands are also known for the large tree canopy of *Mangifera indica* L. plants.



Figure-2: Locations of *Gloriosa superba* L. in Khaparaha village, Jaunpur District-UP, INDIA
Source: www.wikimapia.org/country/india

METHODOLOGY

The present study was carried out during the winter season in the Year 2013. Information about the existence of *Gloriosa superba* L. plant was collected by field visits nearby tree rich areas for few days. All data regarding to taxonomical identification were recorded on field documentary. Further, plant specimen was collected and herbarium was prepared for description. Species was identified by using available secondary literature. We spotted three locations of the species with the help of local dwellers.

RESULTS AND DISCUSSION

Plant profile: Three individuals of *Gloriosa superba* L were found on three distinct locations L-1, L-2 and L-3 as shown in figure-2. Species belonging to the Liliaceae Family of the monocotyledons plants, its Genus is *Gloriosa* and

species is *Superba*. During our survey, we found this climber associated with other plants like *Ziziphus sp*, *Clerodendron infortunatum Linn*, etc. except these plants some other plants also was observed in the distance of 5-10 Mt. which are *Mangifera indica L.*, *Madhuca indica*, *Bambusa arundinaceae* etc. Total three locations were recorded for presence of *Gloriosa superba L.*



Figure 3. Flowering of *Gloriosa superba L*

Habitat- The plant was grown in sandy soil which was nutrient poor soil and it is semi woody climber up to five meter. It was observed at 10mt distance from agriculture land boundary. The plant grows well in sandy loam soil having slightly acidic to neutral in the range of pH 5.5-7.0. It is a tropical plant and comes up in well in warm, humid regions and ideally rainfall 350-400cm is required.

Taxonomy of *Gloriosa superba L* Perennial climbing glabrous climber with tuberous root; Leaves sub sessile alternate, opposite or whorled; inflorescence auxiliary solitary or sub corymbose toward the ends; in few flower terminal racemes; pedicel to 7cm long; Flower bisexual yellow in lower half, at length completely scarlet; Perianth-lobes 6, free 5-7 x 0.8-1.2 cm; linear oblong reflexed or spreading; Stamen 6, filament 3-4 cm long, anther oblong—linear; stigma 3, capsule 3-5 x 1.2 cm, ellipsoidal-oblong; fruits coriaceous septicidal, fusiform; seed numerous 3mm, globose, testa pongy.

Flowering and Fruiting: Flowering and fruiting was observed during July to December.

Medicinal importance of *Gloriosa superba L*: Rhizomes and seeds of this plant are chemically constituted of Colchicine, Isoperlolyrine, and related tropolane alkaloids. Air dried rhizomes contains β -sitosterol and its glucoside, 2-hydroxy 6-methoxy benzoic acid. Plant is useful towards the rheumatism. (Prakash, 2011). Colchicine is used towards gout, cancer related diseases and chromosome manipulation in present researches. (Finnie and Staden, 1994)

CONCLUSION

Gloriosa superba L. plant is highly valuable which is still unknown to the people of this particular study area. Therefore, there is immediate need to do study on the enumeration and conservation of this plant.

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REFERENCES

- Evans D., Tanis, S., and Hart, D. (1981).** A Convergent Total Synthesis of *Desacetamido Isocolchicine*. *J. Amer. Chem. Soc.* Vol. 103: pp. 5813-5821.
- Finnie J.F. and Staden J.V. (1994).** *Gloriosa superba* L. (Flame Lily): Micropropagation and in Vitro Production of Colchicine. *Medicinal and Aromatic Plants VI. Springer.* Vol. 26, pp.146-166.
- Jana S. and Shekhawat G. (2011).** Critical Review on Medicinally Potent Plant Species: *Gloriosa Superba*. *Elsevier-Fitoterapia.* Vol. 82 (3), pp293-301.
- Mishra H. S., Lal, and P K. (2011).** *Gloriosa Superba* – An Endangered Plant Spotted For the First Time From Forest of Tpchanchi, Hazaribag (Jharkhand) India. *Sci. Res. Reporter.* Vol 1 (2). pp. 61-64.
- Neuwinger H. (1994).** Poisons and Drugs, Chemistry, Pharmacology, Toxicology. African Ethnobotany CRS Press, pp. 941.
- Prakash A. (2011).** Uses of Some Threatened and Potential Ethnomedicinal Plants among the Tribals of Uttar Pradesh and Uttrakhand In India. Lucknow: National Conference on Forest Biodiversity: Earth's Living Treasure. *International Year of Forest.* www.upsbdb.org/pdf/Souvenir2011/12.pdf. pp 93-99.
- Pullaiah (2002).** Medicinal Plants in India. Vol. 1&2. New Delhi: Regency Publication.
www.wikimapia.org/country/india