International Journal of Research in Pharmacy and Pharmaceutical Sciences
www.pharmacyjournal.in
ISSN: 2455-698X
Received: 17-04-2023, Accepted: 02-05-2023, Published: 17-05-2023
Volume 8, Issue 2, 2023, Page No. 56-58

Preparation and evaluation a cough syrups from herbal plant Madagascar periwinkle *(Catharanthus roseus)* seed

Saurabh Kumar Singh*, Vijay, Lakshay Jasrotia, Neha Pathak
Department of Pharmacy, School of Health Sciences, Sushant University, Gurugram, Haryana, India

Abstract
The genus Catharanthus consists of eight species, seven of which are native to Madagascar and one, C. pusillus, to India. *Catharanthus roseus*, Madagascar periwinkle is one of the few pharmacological plants which have a long history of healing paths from Mesopotamian folklore 2600 BC to the present day it plays a significant role as herbal and traditional medicine for various diseases. As before published reviews on Madagascar periwinkle mostly focus on pharmaceuticals and chemicals compounds of the herb, the lack of information about other properties of the species is extremely palpable. This organized review provided insight into the agro technological, biological, environmental and medicinal fields aspects (especially anticancer compounds) of Madagascar periwinkle along with possible pathways action mode. *Catharanthus roseus* has diverse medicinal and therapeutic potential revealed that this magical herb can be fully utilized and can be oriented for future research heading for it.

Keywords: *Catharanthus roseus*, vinca rosea, cough syrup, Mesopotamian

Introduction
Catharanthus roseus L. (Madagascar periwinkle) has several synonyms, e.g. Vinca rosea, Ammocallis rosea and Lochnera rosea. Other English names occasionally used for the plant include Cape periwinkle, pink periwinkle, pink periwinkle and maidenhair [1-3]. It's important a medicinal plant of Apocynaceae containing abundant useful alkaloids, used in diabetes, blood pressure, asthma, constipation, cancer and menstrual problems. Vinblastine and vincristine are two potent anticancer natural products belonging to the group of terpenoid-indole alkaloids isolated from the pantropical plant *Catharanthus roseus*, in which they are present only as minor components of a complex mixture of about 130 alkaloids produced by this plant [4-5]. Over the past 40 years, vinblastine and vincristine have been used to treat and cure thousands of patients, both because of their unique mode of action and their effectiveness. The plant has a long history of use in Ayurvedic medicine, traditional Chinese medicine and other healing systems. Western medical science began investigating *Catharanthus roseus* and its extracts during the 20th century and found several compounds useful in the treatment of cancer. All parts of the plant have been used in regional herbal medicine, including the dried root, leaves, flowers, and stems. The alkaloids used in modern medicine are extracted from the whole dried plant [6-10].

Marphology
Catharanthus roseus is an evergreen sub-herb or herb. It comes from Madagascar, this herb grows to a height of 80 cm to 1 m and flowers continuously throughout the year pink, purple or white flowers [11-12]. The leaves are oval to oblong, 2.5-9.0 cm. long and 1-3.5 cm. broad glossy green hairless with a pale midrib and a short petiole about 1-1.8 cm. long and are arranged in opposite pairs. There are two common cultivars of C. roseus named after the color of the flowers, one producing the pink flower 'Rosea' and second, the white flowers of 'Alba'. The flowers are white to dark pink with a dark red center, with basal tube about 2.5-3 cm. long and crown about 2-5 cm. diameter with five petals like lobes. The fruit is a pair of follicles about 2-4 cm. long and 3 mm wide [13-16].

Geographical distribution
Catharanthus roseus comes from the island of Madagascar in the Indian Ocean. It has been introduced as a popular ornamental plant in many tropical and subtropical regions around the world. It is grown commercially for medicinal purposes in Spain, the United States, China, Africa, Australia, India and southern Europe. Drugs obtained from this plant find major markets in the USA, Hungary, West Germany, Italy, the Netherlands and Great Britain [17-18]. It is now common in many tropical and subtropical regions around the world, including the southern United States of America.

Cytology, reproduction and genetic diversity
The number of chromosomes of all species of the genus *Catharanthus* is 2 16. Chromosome doubling, tetraploidy was induced by colchicine treatment, resulting in increased TIA, larger stomata, branches, and leaves, although pollen fertility and poor seed set were reduced compared to diploid plants. *Catharanthus roseus* is a unique species due to its self-compatibility, unlike most other species in the family. However, self-pollination within the flower does not normally occur in periwinkle due to the physical separation of stigma and anthers, a phenomenon known as reverse herkogamy, where the stigma is embedded below the level of the anthers [19].

Traditional and folkloric uses
There are many traditional and folkloric uses of periwinkles that are time-tested and confirmed by people's beliefs. A paste made from the leaves is an excellent wound healer and also relieves pain after a wasp sting. It can stop bleeding and thus speed up the healing process. Many also say that periwinkle is helpful in relieving depression, headaches, and fatigue [20-21].

Table 1: Uses of periwinkle in different country

S.N.	Country	Use
1	India	The juice of leaves is used as application to bee sting/ wasp sting.
2	Madagascar	The bitter and astringent leaves are used as vomitive, roots used as purgative, vermifugl, depurative, hemostatic and toothache remedies.
3	Mauritius	The juice of leaves is used for indigestion and dyspepsia.
4	West Indies and Nigeria	The plant is used in diabetes.
5	Cuba and Jamaica	Flower extract is used for eye wash in infants.
6	Bahamas	Decoction of flower is used in asthma, tuberculosis and flatulence.
7	Malaysia	The plant is used in diabetes, hypertension, insomnia and cancer.
8	Hawai	Extract of boiled plant is used to arrest bleeding.
9	Philippines	Decoction of leaves is used in diabetes and decoction of young leaves is used in stomach cramps root decoction is used for intestinal parasitism. Infusion of leaves is used for treating menorrhagia. Crude leaf extracts and root has anti-cancer activity. Roots used for dysentery.
10	America	Gargle of plant is used to ease sore throats, chest ailments and laryngitis.
11	Africa	Leaves are used for menorrhagia and rheumatism.

Material and method

Pant material

Madagascar periwinkle seeds (Vinca seeds) were collected from the local market of Gurugram.

Method of preparation of exract

The seeds were cleaned, shade dried and mechanically pulverized and stored in an airtight containers. The extraction was done by maceration. About 5 g of the powder was extracted with 80% methanol and was kept for 48-72 hours and then filtered. The extract was kept in a refrigerator at 4 °C (Fig 1-3).

Fig 1: Powdered Madagascar periwinkle seeds

Fig 2: Extract of Madagascar periwinkle seeds

Fig 3: Dry extract of Madagascar periwinkle seeds at 4°C.

Madagascar periwinkle is a plant. The parts that grow above the ground and the root are used to make medicine. Madagascar periwinkle is used for diabetes, cancer, sore throats, coughs, insect bites, and many other conditions, but there is no good scientific evidence to support these uses. Using Madagascar periwinkle can also be dangerous [5-6]. These drugs have serious side effects and should only be administered under medical supervision. Madagascar periwinkle is considered dangerous for self-medication. The appropriate dose of Madagascar periwinkle depends on several factors such as the user's age, health, and several other conditions [8].

Result

Purified forms of some of the chemicals found in Madagascar periwinkle are approved by the US Food and Drug Administration (FDA) for injection to treat cancer and this current study successful attempt was made for a new formulation i.e. syrup which can be easily taken and having high patient acceptability.

Conclusion

Currently, there is not enough scientific information to determine an appropriate range of doses for Madagascar periwinkle. Keep in mind that natural products are not always necessarily safe and dosage can be important. Be sure to follow the appropriate directions on product labels and consult your pharmacist or doctor or other healthcare professional before use.

Acknowledgment
The authors would like to thank Principal Prof (Dr.) Jyoti Sinha and Associate Professor Dr. Vinod Kumar; Dept. of Pharmacy, School of Health Sciences, Sushant University, Gurugram, India for providing necessary research facilities.

Conflict of Interest
The author declared no conflict of interest

References
1. Gajalakshmi S, Vijayalakshmi S, Devi RV. Pharmacological activities of Catharanthus roseus: A perspective review. International Journal of Pharmaceutical Science,2013:4(2):431-439.
2. Anonymous. Plant Resources of Tropical Africa. African Ornamentals. Proposals and Examples, PROTA Foundation, Wageningen, The Netherlands, 2011.
3. Lata B. Cultivation, mineral nutrition and seed production of Catharanthus roseus (L.) G. Don in the temperate climate zone. Phytochemistry Reviews,2007:6(2-3):403-411.
4. Kumar V**,** Sharma AK, Rajput SK, Pal M, Dhiman N. Evaluation of phytochemical, toxicological and pharmacological profile of *Eulaliopsis binata* leaf extracts. Toxicol Res,2018:7:454-464.
5. Kumar V, Pal M, Dhiman N. Determination of Sun Protection Factor in different extract of *Eulaliopsis binata.* Plant Archives,2019:19(2):185-187.
6. Mohan C, Kumar V. A Comparative Study of SARS, MERS with COVID-19. Coronaviruses,2021:2(3):364-368. DOI: 10.2174/2666796701999200905093233)
7. Kumar V**,** Sandhr V, Kumar V. Prognosticating the Spread of Covid-19 Pandemic Based on Optimal Arima Estimators. Endocrine, metabolism and immune disorders,2021:21(4):586-591. DOI: 10.2174/1871530320666201029143122
8. Khan A, Sinha J, Kumar V. Awareness survey on COVID-19 pandemic in India. International Journal of Science and Technology Research Archive (IJSRTA),2022:3(2):160-164. (DOI: https://doi.org/10.53771/ijstra.2022.3.2.0146)
9. Kumar *et al*. Predilection of Indian Portfolio framework in COVID-19 infodemic - An Analysis. Journal of Pharmaceutical negative result,2022:13(5):940-944 (Doi:10.47750/Pnr.2022.13.S05.149)
10. Kumar N, Kumar V, Chowdhary. A review on synthesis of tricyclic 1,2,3,4 tetrahydrocarbazoles. World journal of advanced Research and Review,2021:13(1):160-171. (DOI: 10.30574/wjarr, UGC)
11. Chandra Mohan, Vinod Kumar. Ion-selective Electrodes Based on PVC Membranes for Potentiometric Sensor Applications: A Review. International Journal of Membrane Science and Technology,2021:8:76-84; E-ISSN: 2410-1869/21
12. Mohan C, Malik D, Pandey S, Kumar V**.** Effect of Covid-19 on India. International Journal of Advanced Educational Research,2020:5(2):19-22. ISSN: 2455-6157
13. Kumar V**,** Verma M, Kumar V. Role of Vitamin C and D in COVID-19. Acta Scientific pharmacology,2020:1(9):1-3.
14. Arya H, Mohan C, Pandey S, Verma M, Kumar V. Phytochemical screening of Basella alba leaves extracts and evaluate its efficacy on sun burn (Sun Protection Factor). European Journal of Molecular & Clinical Medicine,2021:8(1):417-423.
15. Michael M. Herbal Formulas For Clinic and Home. Bisbee, AZ 85603, 1995, 1-34.
16. Choudhary N, Sekhon BS. An overview of advances in the standardization of herbal drugs. J Pharm Educ Res,2011:2(2):55-70.
17. Kulkarni RN, Sreevalli Y, Baskaran K, Kumar S. The mechanism and inheritance of intraflower self-pollination in self-pollinating strains of periwinkle. Plant Breeding,2001:120:247-250.
18. Van der Heijden R, Jacobs DI, Snoeijer W, Hallard D, Verpoorte R. The Catharanthus alkaloids: Pharmacognosy and biotechnology. Current Medicinal Chemistry,2004:11:607-628.
19. Sreevalli Y, Baskaran K, Kulkarni RN, Kumar S. Further evidence for the absence of automatic and intra-flower selfpollination in periwinkle. Current Science,2000:79(12):1648-1649.
20. Lee IM, Davis RE, Gunderson Rindal DE. Phytoplasma: Phytopathogenic mollicutes. Annual Review of Microbiology,2000:54:221-255.
21. Van der Heijden R, Jacobs DI, Snoeijer W, Hallard D, Verpoorte R. The Catharanthus alkaloids: pharmacognosy and biotechnology. Current Medicinal Chemistry,2004:11(5):607-628.