

Catharanthus Roseus Chemical Constituents And Pharmacological Properties: A Review

Kolpakar Mrunal A., Shinde Tanmay R., Valate Mansi S., Khadse Riya A., MS. Padwal Prachi N.
Samarth Institute of Pharmacy, Belhe, Junnar, Pune, Maharashtra, India

Abstract: *Ayurveda is the Indian traditional system of medicine which focuses on the medical potential of plants. Catharanthus roseus is one plant recognized well in Ayurveda. The genus Catharanthus consists of eight species of which seven are native to Madagascar and one, C. pusillus, to India. Catharanthus roseus, Madagascar periwinkle is one of the few pharmacological plants that have a long history of therapeutic voyage from Mesopotamian folklore of 2600 BCE till today playing a considerable role as herbal and traditional medicine of various diseases. The Catharanthus (or Vinca) alkaloids comprise a group of about 130 terpenoidindole alkaloids. Vinblastine is now marketed for more than 40 years as an anticancer drug and became a true lead compound for drug development. Due to the pharmaceutical importance and the low content in the plant of vinblastine and the related alkaloid vincristine, Catharanthus roseus became one of the best studied medicinal plants. Consequently it developed as a model system for biotechnological studies on plant secondary metabolism.*

Drying of Catharanthus roseus leaves offer easy utilization of its powder for medicinal purposes but is challenging due to temperature sensitivity of its bioactive constituents. In this work, C. roseus leaves were subjected to three economic drying techniques: solar, tray (40, 50, 60°C) and, microwave (450, 600, 900 W) to identify the best drying condition for retention of bioactives of C. roseus leaves. Semi-empirical models that best defined the drying conditions were identified. Results revealed lowest moisture content (~1.2% d.b.), drying time (4–8 min) and activation energy (36.92 kJ/mol) with high moisture diffusivity (~10–9 m²/s) for microwave drying. For retention of bioactives, solar drying in natural convection mode performed well and may serve as a low-cost drying strategy. However, leaves dried at 600 W microwave power showed higher antioxidants (152 mg TE/g), phenols (11.28 mg GAE/g), and flavonoids (59.69 mg/QE g) and is recommended for drying of C. roseus leaves.

Keywords: Species, alkaloids, vincristine, vinblastine, Catharanthus roseus