

The formulation and manufacture of plant medicines

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KEY POINTS

- Plant constituents are components in a number of modern conventional and complementary healthcare products.
- Quality control of crude plant drugs is more complex than for single chemical entities.
- Production methods used for plant derived medicines are necessarily more involved than for single chemical entities.

- Due to the complex nature of plant-derived materials as drugs, they present a wide range of formulation problems.
- A wide range of formulations of plant medicines are increasingly available.
- There are a number of pharmaceutical issues related to plant medicines, including variability, quality, bioequivalence, and adverse effects.

Introduction

Drugs obtained directly from plant sources are notably alkaloids, glycosides and phenolic compounds. Plant material is also a favoured source for volatile (essential) oils. They are used in a number of different dosage forms; conventional plant derived pharmaceuticals, OTC preparations for minor ailments, herbal remedies, homoeopathic mother tinctures and medicines, volatile (essential) oils used medicinally and in aromatherapy, nutraceuticals (single and complex entities), antioxidants plus a vast array of traditional usages worldwide.

The *European Pharmacopoeia* alone contains more than 166 monographs for herbal drugs and 77 for herbal drug preparations, with an increasing number under study for future inclusion (Vlietinck et al, 2009).

Plant-based products in medicinal use

There is a wide range of plant derivatives in use for the manufacture of medicinal products. These