

## ANTITUMORS

Anticancer, or antineoplastic, drugs are used to treat malignancies, or cancerous growths. Drug therapy may be used alone, or in combination with other treatments such as surgery or radiation therapy.

Anticancer drugs are used to control the growth of cancerous cells. **Cancer** is commonly defined as the uncontrolled growth of cells, with loss of differentiation and commonly, with metastasis, spread of the cancer to other tissues and organs

. Cancers are malignant growths. In contrast, benign growths remain encapsulated and grow within a welldefined area. Although benign tumors may be fatal if untreated, due to pressure on essential organs, as in the case of a benign **braintumor**, surgery or radiation are the preferred methods of treating growths which have a well defined location. Drug therapy is used when the tumor has spread, or may spread, to all areas of the body.

### Vinca

#### **Synonyms**

*Vinca rosea*, Catharanthus, Madagascar periwinkle.

#### **Biological Source**

Vinca is the dried entire plant of ***Catharanthus roseus*** Linn., belonging to family **Apocynaceae**.

#### **Geographical Source**

The plant is a native of Madagascar and is found in many tropical and subtropical countries especially in India, Australia, South Africa and North and South America. The plant is cultivated as garden plant in Europe and India.

## **Cultivation and Collection**

The plant is perennial and retains its glossy leaves through-out the winter. The plant prefers light (sandy), medium (loamy) and heavy (clay) soils and can grow in heavy clay soil. The plant prefers acid, neutral and basic (alkaline) soils. It can grow in full shade (deep woodland) semishade (light woodland) or no shade. It requires dry or moist soil and can tolerate drought. It is cultivated either by directly sowing the seeds or sowing the seeds in nursery. Nursery sowing method is found to be economical and the fresh seeds are sown in nursery in the month of February or March. The seedlings attain a height of 5–8 cm after two months and then they are transplanted in to the field at a distance of 45 cm × 30 cm. Proper fertilization and weeding is done timely and leaves are stripped after nine months. In order to collect the whole plant, the stems are first cut about 10 cm above the grounds and the leaves, seeds, stems are separated and dried.

## **Characteristics**

The leaves are green in colour, flowers are either violet, pinkish white or carmine red and roots are pale grey in colour. It has characteristic odour and bitter taste. The flowers are hermaphrodite (have both male and female organs) and are pollinated by bees. Leaves are petiolate, entire margin, ovate or oblong, glossy appearance and with acute apex. Fruit is follicles with numerous black seeds.

## **Chemical Constituents**

Alkaloids are present in entire shrub but leaves and roots contain more alkaloids. About 90 alkaloids have been isolated from Vinca from which some like Ajmalicine, Serpentine and Tetrahydroalstonine are known and are present in other species of Apocynaceae. The important alkaloids in Catharanthus are the dimer indole indoline alkaloids Vinblastine and Vincristine and they possess definite anticancer activity. Vindoline and Catharanthine are indole monomeric alkaloids. It also contains monoterpenes, sesquiterpene, indole and indoline glycoside.

## **Uses**

Vinblastin is an antitumour alkaloid used in the treatment of Hodgkin's disease. Vincristine is a cytotoxic compound and used to treat leukaemia in children. Vinca is used in herbal practice for its astringent and tonic properties in menorrhagia and in haemorrhages generally. In cases of scurvy and for relaxed sore throat and inflamed tonsils, it may also be used as a gargle. For bleeding piles, it may be applied externally, as well as taken internally. It is also used in the treatment of diabetes.

The flowers of the Periwinkle are gently purgative, but lose their effect on drying. If gathered in the spring and made into a syrup, they impart all their virtues, and this, it is stated, is excellent as a gentle laxative for children and also for overcoming chronic constipation in grown persons.