

#### 7.1.4. Picrorhiza ②

Picrorhiza is a perennial herb (**figure 7.3**) found in the Himalayan mountains. The practitioners of Ayurvedic medicine utilise the roots and rhizomes of this plant for treatment of various diseases.

##### Synonyms

Indian gentian and kutki.

##### Biological Source

Picrorrhiza is the dried rhizomes of *Picrorrhiza kurroa* (Scrophulariaceae). It is cut into small pieces and the attached rootlets are removed. It should contain not less than 5.0% of Kutkin on dried basis.



(a) Picrorrhiza Twig (b) Rhizomes of Picrorrhiza

Figure 7.3: Picrorrhiza

#### Occurrence and Distribution

Picrorrhiza grows in the upper Himalayan region and in China. It grows naturally in Kashmir, Sikkim, Punjab, Uttar Pradesh, and Himachal Pradesh. The drug is collected from the plants which grow naturally and then cultivated at higher altitudes (2700-4500m) in Himalayas.

#### Organoleptic Evaluation

- 1) **Colour:** Rhizomes are deep greyish-brown, external surface is white, internal surface is blackish with whitish-wood.
- 2) **Odour:** Slight and unpleasant.
- 3) **Taste:** Bitter.
- 4) **Size:** 3-5cm long and 0.5-1cm in diameter.
- 5) **Shape:** Cylindrical pieces with longitudinal wrinkles and annulations at the tip.
- 6) **Roots:** Longitudinally wrinkled with transverse cracks; grey to brown in colour; fracture is tough.

#### Chemical Constituents

Picrorrhiza contains iridoid bitter substances, **kutkin**, **picroside I and II**, and **kutkoside**. Picroside and kutkoside are C-9 monoterpene iridoid glycosides with an epoxy moiety in the cyclopentane ring. Picrorrhiza also contains organic acids, resin, sugar, and tannins.

	R	R <sub>1</sub>	R <sub>2</sub>
Picroside I	H	H	<i>trans</i> -cinnamoyl
Picroside II	Vannilloyl	H	H
Kutkoside	H	Vannilloyl	H

#### Therapeutic Efficacy

- 1) It is used as a valuable bitter tonic, antiperiodic, febrifuge, and stomachic.

- 2) In large doses, it is effective as a laxative.
- 3) The alcoholic extract of its roots exhibit antibacterial property.
- 4) It is used in the treatment of jaundice.
- 5) Central Drug Research Institute (CDRI), Lucknow has found kutkoside as a potential hepatoprotectant.

### 7.1.5. Dioscorea

In the family Dioscoreaceae, around six hundred species of flowering plants are classified under genus *Dioscorea*. The genus is named after the ancient Greek physician and botanist, **Dioscorides**.

#### Synonyms

Yam, Kins, and Singli-mingli.

#### Biological Source

Dioscorea is the dried rhizome of several species of *Dioscorea* like *Dioscorea deltoidea*, *D. composite*, and other species of *Dioscorea* (figure 7.4).

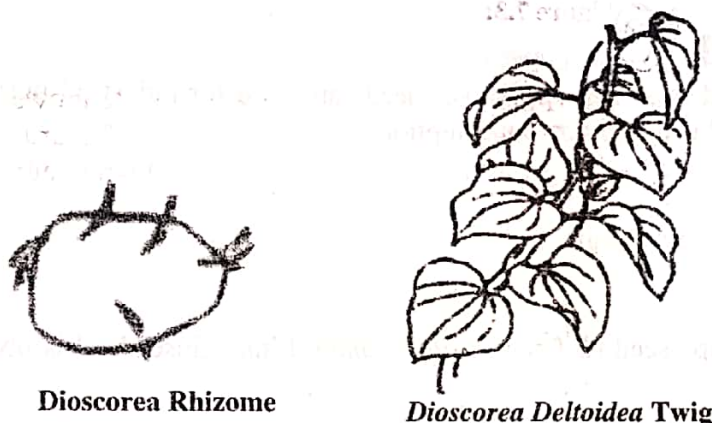


Figure 7.4: Dioscorea

#### Family

Dioscoreaceae

#### Occurrence and Distribution

The vast majority of the species are tropical, and only a few species extend into temperate climates. It is cultivated in North America, Japan, China, Mexico, India, and Nepal. In India, it grows widely in Western Himalayas, Karnataka, Jammu and Kashmir, Maharashtra, Tamil Nadu, West Bengal, etc.

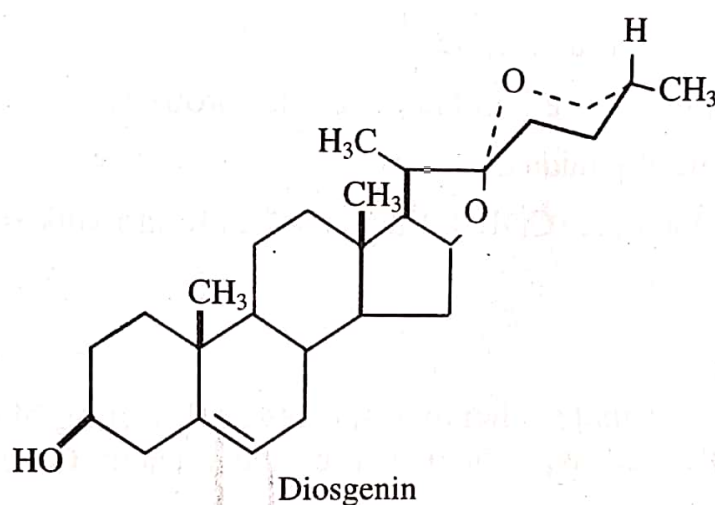
#### Organoleptic Evaluation

- 1) **Colour:** Slightly brown.
- 2) **Odour:** Odourless.
- 3) **Taste:** Bitter.
- 4) **Size:** Varies depending upon age of rhizomes.

#### Chemical Constituents

Dioscorea contains **diosgenin** (a steroidal sapogenin), **epismilagenin** (its glycoside) and **yammogenin** ( $\beta$ -isomer). It also contains sapogenase, phenolic compounds and starch.



**Chemical Tests**

On treating diosgenin (a steroidal sapogenin) with acetic anhydride in the presence of sulphuric acid, a bluish green colour develops.

**Therapeutic Efficacy**

Diosgenin is used for manufacturing progesterone and other steroid drugs, which are used as contraceptives and in diseases like asthma and arthritis.