

# Squill

## Species (Family)

*Drimia maritima* (L.) Stearn (Liliaceae)

## Synonym(s)

Scilla, Urginea, *Urginea maritima* (L.) Baker, *Urginea scilla* Steinh., White Squill

## Part(s) Used

Bulb (red and white varieties)

## Pharmacopoeial and Other Monographs

BHC 1992<sup>(G6)</sup>

BHP 1996<sup>(G9)</sup>

BP 2001<sup>(G15)</sup>

Complete German Commission E<sup>(G3)</sup>

Martindale 32nd edition<sup>(G43)</sup>

PDR for Herbal Medicines 2nd edition<sup>(G36)</sup>

## Legal Category (Licensed Products)

GSL<sup>(G37)</sup>

## Constituents<sup>(1,2,G6,G22,G41,G48,G62,G64)</sup>

**Cardiac glycosides** Scillaren A and proscillaridin A (major constituents); others include glucoscillaren A, scillaridin A, scillicyanoside, scilliglucoside, scilliphaeoside, scillicoelaside, scillazuroside and scillicroptoside. Scillaren B represents a mixture of the squill glycosides.

**Flavonoids** Apigenin, dihydroquercetin, isovitexin, iso-orientin, luteolin, orientin, quercetin, taxifolin and vitexin.

**Other constituents** Stigmasterol, tannin, volatile and fixed oils.

## Food Use

The Food Additives and Contaminants Committee (FACC) has recommended that squill be prohibited as a food flavouring.<sup>(G45)</sup>

## Herbal Use

Squill is stated to possess expectorant, cathartic, emetic, cardioactive and diuretic properties. Traditionally, it has been used for chronic bronchitis, asthma with bronchitis, whooping cough, and specifically for chronic bronchitis with scanty sputum.<sup>(G6,G7,G8,G64)</sup>

## Dosage

**Dried bulb** 60–200 mg or by infusion three times daily.<sup>(G6,G7)</sup>

**Squill Liquid Extract** (BPC 1973) 0.06–0.2 mL.

**Squill Tincture** (BPC 1973) 0.3–2.0 mL.

**Squill Vinegar** (BPC 1973) 0.6–2.0 mL.

## Pharmacological Actions

The aglycone components of the cardiac glycoside constituents possess digitalis-like cardiotoxic properties.<sup>(G41)</sup> However, the squill aglycones are poorly absorbed from the gastrointestinal tract and are less potent than digitalis cardiac glycosides.<sup>(1,2)</sup>

Expectorant, emetic and diuretic properties have been documented for white squill.<sup>(G41)</sup> Squill is reported to induce vomiting by both a central action and local gastric irritation.<sup>(1,2)</sup> Subemetic or near-emetic doses of squill appear to exhibit an expectorant effect, causing an increase in the flow of gastric secretions.<sup>(1,2)</sup>

Antiseborrhoeic properties have been documented for methanol extracts of red squill which have been employed as hair tonics for the treatment of chronic seborrhoea and dandruff.<sup>(G41)</sup>

Squill extracts have been reported to exhibit peripheral vasodilatation and bradycardia in anaesthetised rabbits.<sup>(1,2)</sup>

## Side-effects, Toxicity

Excessive use of squill is potentially toxic because of the cardiotoxic constituents. However, squill is also a gastric irritant and large doses will stimulate a vomiting reflex. Red squill is toxic to rats and is mainly used

as a rodenticide, causing death by a centrally induced convulsant action.<sup>(1,2)</sup> A squill soft mass (crude extract) has been stated to be toxic in guinea-pigs at a dose of 270 mg/kg body weight. A fatal dose for Indian squill (*Urginea indica* Kunth.) is documented as 36 mg/kg.

### Contra-indications, Warnings

Squill may cause gastric irritation and should be avoided by individuals with a cardiac disorder. In view of the cardiotonic constituents, precautions applied to digoxin therapy should be considered for squill.

**Pregnancy and lactation** Squill is reputed to be an abortifacient and to affect the menstrual cycle.<sup>(G30)</sup> In addition, cardioactive and gastrointestinal irritant properties have been documented. The use of squill during pregnancy should be avoided; excessive use should be avoided during lactation.

### Pharmaceutical Comment

Squill is characterised by its cardiac glycoside components and unusual flavonoid constituents. The reputed actions of squill as an expectorant, emetic and cathartic can be attributed to the cardioactive components and squill has been used as an expectorant for many years. However, in view of the documented cardioactive and emetic properties of the aglycones, excessive should be avoided. Red squill is primarily used as a rodenticide.

### References

*See also* General References G3, G6, G9, G12, G13, G15, G22, G29, G30, G31, G36, G37, G41, G43, G48, G56, G62 and G64.

- 1 Court WE. Squill – energetic diuretic. *Pharm J* 1985; 235: 194–197.
- 2 Squill *Lawrence Review of Natural Products*. Levittown, Pennsylvania: Pharmaceutical Information Associates Ltd, 1989.