

ALLIUM SATIVUM

(Alli. sat.)

- Botanical name** : *Allium sativum* L. **Family:** Alliaceae
- Synonym** : *Allium ophioscorodon* G. Don.
- Common names** : *Hindi:* Lahsan, Lahsun; *English:* Garlic; *French:* Ail, Ail commun; *German:* Knoblauch.
- Description** : An acaulescent, bulbous, hardy perennial herb, cultivated as an annual, up to 60 cm in height. Bulbs ovate, flattened below, tapering upwards and compound i.e. composed of small bulblets. Stem much reduced (disc), convex-conical in shape, internodes very compressed from where fleshy scale leaves arise, a bud present at the apex from which flowering scape develops. Leaves linear, flat, lanceolate. Scape slender, spathe one-leaved, long, pointed, head bearing bulbils and flowers in umbel. Flowers small, white. Perianth trimerous with 6 tepels, segments lanceolate, acuminate; stamens 6, filaments of inner whorl tricuspidate; ovary trigonous, trilocular, style filiform. Fruit a capsule.
- Distribution** : Native of Mediterranean region. Cultivated universally.
- Part used** : Mature bulb
- Macroscopical** : Tunicated, globular, grayish-white, 4 to 6 cm; diameter, gradually tapering towards the apex, composed of 8 to 20 fleshy bulblets or cloves, whole bulb surrounded by 3 to 5 whitish papery membranous scales formed from the leaf base of the previous year's bulb and placed on disc-like stem which bears 20 to 40 trout fibrous root at the base; each bulblet irregular-ovoid in shape, dorsal surface convex, each consisting of 2 or 3 yellowish-green leaves folded longitudinally like horse-shoe and contained within 1 white and 1 translucent fleshy, modified leaf bases or scales which surrounded outwardly by 2 thin whitish scales, the outermost being very thin, papery and brittle. Odour strongly alliaceous; taste intensely pungent.
- Microscopical** : Outer scale: transection shows elongated narrowed outer and inner epidermal cells with beaded or porous walls; followed by thick ellipsoidal hypodermal crystal layers with beaded or porous walls; each cell contains a large prismatic crystal about 20 to 50µm long, some cells also contain small crystals in addition; several

parenchymatous layers of mesophyll; scattered vascular bundles with vessels having spiral thickenings.

Inner scale: inner scale having the same type of tissue arrangement like outer scale but the cells of outer epidermis sclerenchymatous, elongated, with thick walls and narrow lumen; hypodermal crystal layers smaller than that of in outer scale, walls more frequently pitted, crystals slightly smaller.

Fleshy white leafbase or fleshy white scale: transection shows thin-walled outer epidermis, cells oblong-rectangular in shape, about 30µm in width and 90µm in length; inner epidermis thin-walled; cells less rectangular than outer epidermis; 55µm in width and 275µm in length; mesophyll thin-walled parenchymatous, cells polygonal with small intercellular spaces; vascular bundles scattered, encircled by a parenchymatous sheath, xylem very narrow, consisting of 1 or 2 radially arranged vessels, phloem well developed.

Fleshy translucent leaf-base or fleshy translucent scale: transection shows epidermal cells with occasional stomata; mesophyll of isodiametric parenchymatous cells, vascular bundles in a ring and each bundle being surrounded by a single layer of parenchymatous bundle sheath.

Foliage leaf: transection shows characteristics as fleshy translucent leaf base but here mesophyll cells chlorenchymatous.

Identification : (1) Colour test: To 1 ml of 68% alcoholic extract add a few drops of *silver nitrate* solution; black precipitate insoluble in *dilute nitric acid* is obtained.

(2) Carryout TLC of 68% alcoholic extract on silica gel 60 F₂₅₄ pre-coated aluminium plate using *n-butanol : propanol : glacial acetic acid : water* (3:1:1:1) as solvent system. After spraying the plate with *ninhydrin* reagent, five spots appear at 0.13 (pink), 0.20 (yellow), 0.26 (violet), 0.38 (pink) and 0.50 (pink).

History and authority : Proved by Petroz and Teste; Allen, T.F., *Encyclop. of Pure Mat. Med.*, 1874, **1**, 160; Hering, C., *Guiding Symptoms*, 1879, **1**, 119; Clarke, J. H., *A Dict. of Pract. Mat. Med.*, 1900, **1**, 56.

Preparation : (a) Mother Tincture Ø Drug strength 1/10

Allium Sativum moist magma containing
solids 100g and plant moisture 300ml 400 g

Strong Alcohol

730 ml

to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, two parts *Purified Water* and seven parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.