PART I
INTRODUCTION
CAPPARIS DECIDUA Edgew Syn. CAPPARIS APHYLLA Roth
FAMILY: CAPPARIDACEAE

C. decidua is a drug of high repute, for its multipurpose therapeutic values in many areas of the Punjab (Rohtak, Hisar, Karnal, Sonepat, Panipat) where it is found in abundance. It has an important place in the 'armamentum' of a medical practitioner of Indian System (Ayurvedic). The author has collected the available data about the therapeutic values of this drug personally from the localities mentioned above. The literature about the uses of the drug contains the following references. 

i. The plant is used as carminative, tonic, emmenagogue, aphrodisiac. It improves appetite and the juice of the fresh plant is poured into ear to kill worms.

ii. Top shoots and young leaves are used as a plaster for boils and swellings. In powder form these are used to relieve toothache and as an antidote for poison. The crushed young twigs are soaked in water, strained, and the aqueous extract is concentrated to a soft mass. It is then used with butter to relieve pain of a bruise or of a fall.

iii. Flowers are used as a condiment in the form of pickles.

iv. Fruit has a sharp hot taste and is astringent to bowels. It destroys foul breath and removes urinary purulent discharges. It is useful in cardiac and stomach troubles. It is considered to be specific for dysentery.

v. Root bark is used in powder form or as infusion in rheumatism, gout, cough, dropsey, palsy etc. Externally the
powder is applied to the malignant ulcers. It is used as analgesic, diaphoretic, alexeteric and anthelmintic. It is also used as a laxative and hence for piles and other inflammatory conditions.

OBJECT OF PRESENT INVESTIGATIONS

Keeping in view the numerous therapeutic uses of the plant in the Indian System of Medicines (Ayurvedic), it was considered worthwhile to undertake scientific investigations of this plant particularly the isolation of its active constituents, and the study of their chemical nature and therapeutic values. Except the physical and chemical constants of the oil (Sen Gupta, 1964) no other references are available about its investigations in the scientific literature.

REVIEW OF THE PREVIOUS WORK

Genus Capparis is comprised of about 270 species, out of which about 40 species grow in India. No detailed scientific investigations have been carried out in the Genus, except some species as C. spinosa, C. tomentosa and C. monnii. In most of these cases, the investigations have been limited to the extraction of the oil from the fruit of the various species, and study of the physical and chemical constants of the oil.

The following work about this Genus is available in the literature.

i. C. spinosa

Brauns and Schmidt (1909) isolated a rhamnoside which was later on confirmed as rutin by Charaux (1924). Zabramnyi and others (1940) analysed the oil isolated from the
seeds and determined its physical and chemical constants.

Zolotnitskaya and others (1954) reported the presence of vitamin E in the seeds. Hegnauer (1961) reported that the oil obtained from the seeds contained unsaturated fatty acids of C₁₈ series.

ii. *C. callosa*

Molisch (1916) found the presence of double maleate of calcium and magnesium in the parenchymatous cells of leaves and stem.

iii. *C. herbaceo*

Ivanov and others (1930) investigated the oil isolated from the seeds and worked out its physical and chemical constants.

iv. *C. horrida*

Chakravarti and Ven-katasubban (1932) carried out preliminary investigations on root bark and showed the presence of phytosterol, water soluble organic acid, mucilaginous substance and an alkaloid, m.p. 260°C. and its picrate m.p. 225°C.

v. *C. sola*

Folkers (1938) showed that the aqueous extract contained an alkaloid with crurare like action. Henry & Grindley (1949) attributed the crurare like action to the presence of tetramethylammonium and allied salts.

vi. *C. albitrunca*

Bonsma (1942) found the presence of proteins 14.5 %, crude fibre 32.01 %, phosphorous pentoxide 0.09 % and calcium oxide 1.26 %.
vii. C. flexuosa

Grundwald (1946) carried out separate investigations of seeds and pod-shells of the fruit. The pod-shells contained oil 5.11%, proteins 21.25%, carbohydrates 51.27%, crude fibre 13.24% and ash 9.13%. They isolated a red colouring matter and pectin. Investigations on seeds showed the presence of oil 21.76%, proteins 25.46%, carbohydrates 44.77%, crude fibre 2.99%, ash 4.52% and glycerol 0.50%. They also detected the presence of enzyme lipase and analysed the oil and reported its physical and chemical constants.

viii. C. tomentosa

Grindley (1950) isolated oil from the seeds and analysed it for its physical and chemical constants. Cornforth, and Henry (1952) isolated a base from the seed husk and pulp and identified it as 1-stachydrine. The structure of 1-stachydrine was confirmed by its synthesis from 1-proline.

ix. C. rothii

Grindley (1954) reported various fatty acids component of the oil isolated from the seeds.

x. C. moonii

C. moonii has been the drug of great dispute regarding its use for the treatment of tuberculosis. Krishnamurthy (1958) reported for the first time the use of its fruit for the treatment of tuberculosis. Sheth and Krishnamurthy (1958) provided additional data in support of this. Bhatnagar (1958) in a personal communication on symposium on chemotherapy doubted the efficiency of this drug.
SEEDS (C. decidua)

ROOT BARK (C. decidua)

CAPARIS DECIDUA Edgew
Family... CAPPARIDACEAE
in the treatment of tuberculosis. Mukerjee and Gupta (1958)\textsuperscript{25} when carried in-vitro and in-vivo tests against \textit{Mycobacterium tuberculosis} failed to find the activity of this drug against tuberculosis. Pershin (1960)\textsuperscript{26} reported that fruit failed to show any chemotherapeutic action in experimentally induced tuberculosis in mice. Rao and Raghavan (1964)\textsuperscript{27} carried out detailed investigations to test the efficiency of the drug against tuberculosis. They showed that freshly collected fruit of Konkan variety from North Kanara (Mysore State) had very low tuberculostatic activity in-vitro but had no effect in experimentally induced tuberculosis in guinea pigs. They determined that the aqueous extract of the whole fruit inhibited the growth of tubercle bacilli between the dilution range of 1:10 and 1:50.

The drug is available in dosage form (tablet) under the proprietary name Rudanil manufactured by Anuh Pharma Ltd. Bombay. The Himalaya Drug Co. Dehradun sells similar type of tablet under the name Qapyna.

Shah and Sukkawala (1959)\textsuperscript{28} detected the presence of tannins in the parenchymatous cells of the fruit and showed the absence of non-phlobatannins and alkaloid.

**BOTANICAL DESCRIPTION OF \textit{CAPPRIS DECIDUA} Edgew**

The common vernacular names of the plant\textsuperscript{1} are as follows: -

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<tr>
<th>Sanskrit</th>
<th>Karira, Gudhapatra.</th>
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<tr>
<td>Hindi</td>
<td>Karer, Karu, Karil.</td>
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<td>Panjabi</td>
<td>Karia, Delha, Karis, Karil.</td>
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<td>Bombay</td>
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<td>Tamil</td>
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Geographical Source

It is chiefly met in dry places and deserts. It grows abundantly in the Punjab, Rajasthan, Pakistan, Sind, Cutch and Gujrat.

Plant habit

It is a straggling, glabarous shrub or tree; branches terete, smooth and green.

Leaves

The leaves are present on the young shoots only and the older branches are leafless. They are small less than 12 mm. long linear oblong, acute and spinous pointed.

Petioles

Petioles are very short or absent; stipular, thorns long, sharp, straight and orange yellow.

Flowers

They are in many flowered corymbs, one inch in diameter and pinkish yellow. Sepals: the outer pubescent ciliate, subvalvate; the lower sepal very saccate, acuminate; the upper much smaller, ovate, oblong, concave; inner sepal elliptic, acute, with floccose margins. Petals: red, narrow oblong, 9x3 mm. Stamens: 18-20. Ovary: superior situated on as long gynophore as stamens.

Fruit

The fruits are globular, size of a small cherry, 1/2-2/3 inches in diameter, glabarous, beaked, fleshy and red when ripe. The pulp of the fruit is yellowish orange, mucilaginous, odourless and sweet in taste. The seeds are embedded in the pulp.
Seeds

The seeds are globular, 2-4 mm. in diameter, kidney shaped, buff coloured; surface rough and granular; hilum present in the curved end; seed coat moderately hard, endosperm absent; embryo consists of slightly curved white cotyledons with distinct redicle; odourless and taste slightly bitter.

Stem bark

Length variable and 2-5 mm. thick; occurs in slightly curved or flat pieces; the outer surface rough, light brown; the inner surface has longitudinal striations, yellowish brown; odourless, bitter in taste and fracture is short.

Root bark

The root bark is variable in length, 2-4 mm. thick; occurs in flat or slightly curved pieces; the outer surface is light brown and covered by almost smooth cork with pale brown transversely elongated lenticles; inner surface has longitudinal striations, yellowish white; acrid and bitter in taste. The fracture is short.
REFERENCES


