

## **Characters of Rhamnaceae:**

Plant trees, shrubs or climbers, climbing by hooks or tendrils; leaves single, stipulate, stipules often spiny, cymose in florescences; flowers hermaphrodite, perigynous; sepals 4-5 free; petals 4-5, free; stamens opposite the concave petals; a well developed intrastaminal disc present; carpels 2-4, 2-4 locular with one basal ovule in each locule, fruit drupe or capsule seeds hard.

### **A. Vegetative characters:**

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#### **Habit:**

Shrubs or trees, often spiny and sometimes hook or tendril climbing (Gouania, Helinus) or twiner (Ventilago), rarely herbs.

#### **Root:**

Tap root deep, branched.

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#### **Stem:**

Usually erect, often spinose, sometimes weak, climbing by hook tendrils or twiners.

#### **Leaves:**

Simple, alternate or opposite, entire or toothed, with 3-5 prominent basal nerves; stipules small, soon falling off, spinous and persistent.

### **B. Floral characters:**

#### **Inflorescence:**

Mostly axillary corymbs, cymes or panicles, rarely solitary; umbellate in Helinus, flowers small and inconspicuous.

#### **Flower:**

Small, yellowish-green, regular, usually bisexual (rarely unisexual by abortion of one of the essential whorls as in Rhamnus) or

polygamous (Gouania); perigynous or epigynous with generally a well-developed intra-staminal disc.

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**Calyx:**

Sepals 5 or 4, connate, lobes valvate, usually ridged internally, basally may be united with receptacle to form a hypanthium.

**Corolla:**

Petals 4-5, valvate inserted in the calyx tube, free, usually clawed and hooded.

**Androecium:**

Stamens 4-5, free, opposite the concave petals, often enclosed within their folds and inserted with them on the axis at or below the margin or rim of the fleshy disc, which may be entire or lobed and either fills the calyx tube or is thin and simply lines it (Rhamnus)-, anthers two-celled, versatile, dehiscent longitudinally.

**Gynoecium:**

Carpels 2-4; ovary sessile, superior or inferior (Helinus), viz., the degree of hypogyny, perigyny or epigyny varies greatly in different species according as the ovary is free from or united with the receptacular cup; 2-4-celled, rarely 1-celled, one erect basal anatropous ovule in each cell; style short, simple; stigma 2-4-lobed.

**Fruit:**

Drupe or a capsule.

**Seed:**

Endospermic, occasionally aril is present.

**1. *Zizyphus mauritiana* (H. Ber) (Fig. 47.1):**

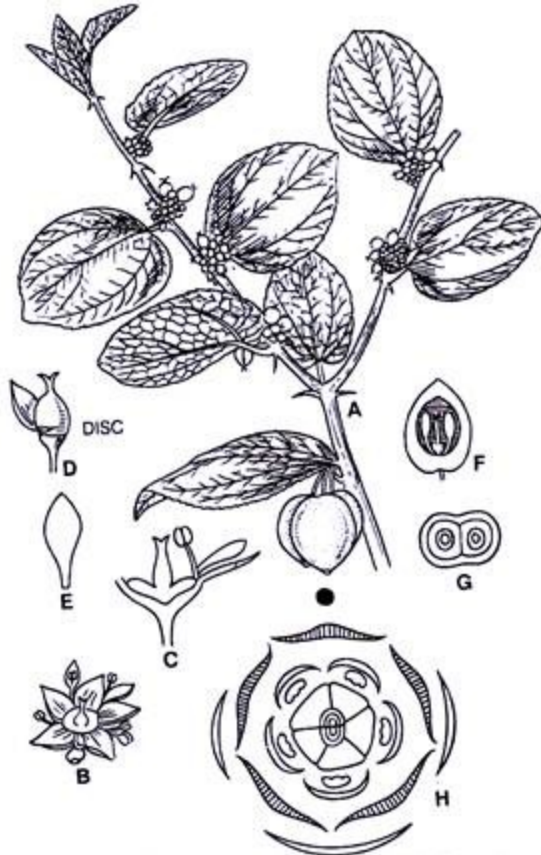


Fig. 47.1. *Ziziphus mauritiana* Lam. (syn. *Z. jujuba* Lam. non Mill.) A. Flowering twig with spinous stipules. B. Flower; s, sepal; p, petal; a, stamen; d, disc; st, stigma with short style; g, ovary. C. Flower in L.S. D. Gynoecium with a sepal intact, E. Single petal. F. Fruit in vertical section. G. T.S. ovary. H. Floral diagram; br, bract; s, sepal; p, petal; a, stamen.

**Habit:**

A shrub or a small tree.

**Root:**

Tap, branched.

**Stem:**

Erect, branched, aerial, spinose.

**Leaf:**

Simple, alternate, stipulate, stipules thorny, entire or serrulate, ovate or ovate-oblong, obtuse, tomentose below.

**Inflorescence:**

Condensed axillary cymes.

**Flower:**

Bracteate, hermaphrodite, complete, actinomorphic, cyclic, hypogynous.

**Calyx:**

Sepals five, polysepalous, pubescent, valvate.

**Corolla:**

Petals five, polypetalous, small, concave, pubescent, white, valvate.

**Androecium:**

Stamens five, opposite the petals, filaments long, curved, anthers small basifixed, a ten lobed intrastaminal disc present.

**Gynoecium:**

Bicarpellary, syncarpous, bilocular, superior, ovary sunk into the disc, ovule one per locule, basal placentation, styles two, each terminating into a rough, discoid stigma, 2-fid.

**Floral formula:**

Br, ⊕ ♂ K<sub>5</sub> C<sub>5</sub> A<sub>5</sub> G(2).