KEY TO THE FAMILIES OF FLOWERING PLANTS OF COASTAL AREAS OF GUJARAT (Khambhat to Umargam).

This key to the identification of Angiospermic families is based on simple, macroscopic characters of the plants encountered in the Coastal Areas of Gujarat only.

Classification

Seeds with two cotyledons; leaves usually with reticulate venation; flowers typically penta- or tetra-merous ..... Class I DICOTYLEDONS

Seeds with one cotyledon; leaves usually with parallel venation, rarely reticulate (Dioscoreaceae); flowers typically trimerous... Class II MONOCOTYLEDONS

Class I. DICOTYLEDONS

Calyx and corolla both present :
(Petals absent in some members of Combretaceae, Aizoaceae and Molluginaceae)

Petals usually free ..... Sub-Class I POLYPETALAE
(United in some members of Cucurbitaceae and Mimosaceae)

Petals united ..... Sub-Class II GAMOPETALAE

Calyx and corolla undifferentiated; perianth mostly sepaloid, rarely petaloid or reduced to a scale ..... Sub-Class III. MONOCHLAMYDEAE

Sub-Class I POLYPETALAE

Thalamus hypogynous, small, convex or elongated, not expanded; ovary usually superior ..... Series I Thalamiflorae

Thalamus hypogynous or perigynous, thickened or expanded into a fleshy disc.. Series II Disciflorae

Thalamus perigynous or epigynous, sometimes hypogynous; sepals united enclosing or adnate to the ovary; petals and stamens inserted on the rim of the calyx tube or around the top of the ovary; ovary superior or inferior ..... Series III Calyciflorae

Series I. Thalamiflorae

1. Gynoecium apocarpous or monocarpellary by reduction :

2. Plants aquatic ..... Nelumbonaceae

2. Plants terrestrial :

3. Flowers unisexual ..... Menispermaceae

3. Flowers bisexual :

4. Sepals and petals imbricate; fruits woody ..... Magnoliaceae

4. Sepals and petals valvate; fruits fleshy ..... Annonaceae

1. Gynoecium syncarpous :

5. Flowers irregular :

6. Androgynophore present ..... Capparaceae (in part)

6. Androgynophore absent :

7. Petal spurred ..... Violaceae

7. Petal not spurred ..... Polygalaceae

5. Flowers regular :

8. Stamens more than 10 :

9. Plants aquatic; placentation superficial ..... Nymphaeaceae

9. Plants terrestrial; placentation not as above :

10. Placentation parietal :

11. Ovary raised on a gynophore :

12. Shrubs or trees ..... Capparaceae (in part)

12. Herbs ..... Cleomaceae (in part)

11. Ovary not on a gynophore ..... Papaveraceae

10. Placentation not parietal :

13. Placentation axile :

14. Stamens free ..... Tiliaceae (in part)

14. Stamens united :

15. Stamens monadelphous ..... Malvaceae

15. Stamens polyadelphous .... Bombacaceae

13. Placentation free-central ..... Portulacaceae (in part)

8. Stamens less than 10 :

16. Leaves scale like, alternate, sheathing; seeds winged ..... Tamaricaceae

16. Leaves well-developed; seeds not winged :

17. Placentation parietal :

18. Stamens tetradynamous ..... Brassicaceae

18. Stamens not tetradynamous ..... Cleomaceae (in part)

17. Placentation not parietal :

19. Placentation axile :

20. Stamens basally united into one bundle ..... Sterculiaceae

20. Stamens distinct, not united :

21. Leaves alternate; sepals valvate ..... Tiliaceae (in part)

21. Leaves opposite; sepals imbricate ..... Elatinaceae

19. Placentation free central :

22. Leaves fleshy; sepals 2; petals 4-5;..... Portulacaceae (in part)

22. Leaves not fleshy; sepals and petals 5 each ..... Caryophyllaceae

Series II. Disciflorae

1. Plants cirrhose (tendril-bearing) :

   2. Fruit a berry ..... Vitaceae

   2. Fruit an inflated capsule ..... Sapindaceae

1. Plants not cirrhose :

   3. Herbs, erect or prostrate :

      4. Leaves simple; sepals spurred ..... Balsaminaceae

      4. Leaves compound; sepals not spurred :

         5. Fruit spiny ..... Zygophyllaceae

         5. Fruit not spiny ..... Oxalidaceae

   3. Trees or shrubs :

      6. Fruit a much elongated capsule, more than 30 cm. long ..... Moringaceae

      6. Fruit not as above :

         7. Leaves gland-dotted ..... Rutaceae

         7. Leaves not gland-dotted :

            8. Stamens monadelphous ..... Meliaceae

            8. Stamens free, distinct :

9. Ovule usually 1 in each cell :

10. Leaves more than 30 cm. long ..... Leeaceae

10. Leaves less than 30 cm. long :

11. Plants usually armed with stipular spines ..... Rhamnaceae

11. Plants unarmed ..... Anacardiaceae

9. Ovules usually 2 in each cell, sometimes many ..... Celastraceae

Series III. Calyciflorae

1. Gynoecium made up of one carpel :

2. Flowers regular ..... Mimosaceae

2. Flowers irregular :

3. Corolla papilionaceous; stamens diadelphous, rarely monadelphous ..... Fabaceae

3. Corolla not papilionaceous; stamens free ..... Caesalpiniaceae

1. Gynoecium made up of more than one carpel :

4. Plants with tendrils :

5. Ovary superior ..... Passifloraceae

5. Ovary inferior ..... Cucurbitaceae

4. Plants without tendrils :

6. Trees, soft-wooded with milky-latex ..... Caricaceae

6. Herbs, shrubs or trees without milky-latex :

7. Flowers regular; stamens definite :

8. Ovary usually superior, free from the calyx :

9. Plants with sticky glands :

10. Annual or biennial herbs; leaves opposite, entire...Vahliaceae

10. An erect shrub, leaves alternate, irregularly serrate .....Turneraceae

9. Plants not as above :

11. Flowers concealed in a petiolar pouch ..... Aizoaceae

11. Flowers not as above :

12. Trees growing near the sea shore ..... Sonneratiaceae

12. Herbs or shrubs :

13. Branches 4-gonous;
embryo straight ..... Lythraceae

13. Branches usually not 4-gonous;
embryo curved ..... Molluginaceae

8. Ovary inferior or half inferior :

14. Plants growing in or near water :

15. Maritime trees; branches swollen
at the nodes; leaves opposite and
stipulate ..... Rhizophoraceae

15. Plants not as above, herbs;
leaves exstipulate ..... Onagraceae

14. Plants terrestrial :

16. Ovary 1-celled :

17. Ovule 1, pendulous ..... Alangiaceae

17. Ovules 2-6, suspended from
the apex of the ovary ..... Combretaceae

16. Ovary 2-celled; one ovule in
each cell ..... Apiaceae
(Umbelliferae)

7. Flowers regular or irregular; stamens indefinite:

18. Succulent, prickly plants with jointed phylloclades ..... Cactaceae

18. Plants not as above :

19. Leaves gland-dotted, intramarginal vein usually present ..... Myrtaceae

19. Leaves not gland-dotted and without intramarginal vein ..... Punicaceae

Sub-Class II. GAMOPETALAE

1. Ovary inferior :

2. Anthers always syngenesious; ovary 1-celled ..... Asteraceae

2. Anthers not syngenesious; ovary more than 1-celled ..... Rubiaceae

1. Ovary superior :

3. Leafless, non-green, total parasitic plants :

4. Root-parasites; flowers irregular in condensed spike ..... Orobanchaceae

4. Thread-like stem-parasites; flowers regular, inflorescence not as above .. Cuscutaceae

3. Green leafy plants, rarely partially parasitic :

5. Leaves usually alternate :

6. Flowers usually unisexual; stamens inserted on the receptacle ..... Ebenaceae

6. Flowers bisexual; stamens epipetalous :

7. Ovules indefinite in each cell :

8. Plants aquatic ..... Menyanthaceae

8. Plants terrestrial :

9. Flowers in simple or branched long racemes ..... Scrophulariaceae (in part)

9. Flowers solitary or in cymes ..... Solanaceae

7. Ovules definite in each cell :

10. Style connate, divided above into 5 stigmatic branches .....Plumbaginaceae

10. Style simple or once or twice forked :

11. Trees or shrubs; plants with milky juice; fruit a berry .....Sapotaceae

11. Herbs or undershrubs :

12. Chiefly climbing or twining plants; style terminal; fruit a capsule ..... Convolvulaceae

12. Erect or diffuse or prostrate herbs;
style usually gynobasic; fruit of four;
1-seeded nutlets or a drupe ..... Boraginaceae

5. Leaves usually opposite :

13. Flowers regular :

14. Plants with milky juice :

15. Gynostemium present; styles 2 ..... Asclepiadaceae

15. Gynostemium absent; style 1 ..... Apocynaceae

14. Plants without milky juice :

16. Shrubs or trees ..... Salvadoraceae

16. Herbs ..... Gentianaceae (in part)

13. Flowers irregular :

17. Fruits elongated; seeds winged ..... Bignoniaceae

17. Fruits not elongated; seeds not winged :

18. Bracts and bracteoles conspicuous... Acanthaceae

18. Bracts minute or absent :

19. Flowers with extra-floral glands at the base of the pedicels :

Placentation parietal ..... Martyniaceae

Placentation axile ..... Pedaliaceae

19. Flowers without extra-floral glands
at the base of the pedicels :

20. Marshy shrubs with pneumatophores ..... Avicenniaceae

20. Plants not as above :

21. Ovules 1 or 2 in each cell :

22. Ovary entire; style terminal ...Verbenaceae

22. Ovary deeply 4-lobed;
style gynobasic .....Lamiaceae

21. Ovules numerous :

23. Ovary two-celled ..... Scrophulariaceae
(in part)

23. Ovary one-celled ..... Gentianaceae
(in part)

Sub-Class III. MONOCHLAMYDEAE

1. Partial stem-parasites :

2. Stem parasitic shrubs ..... Loranthaceae

2. Twining, leafless parasitic herbs ..... Lauraceae

1. Plants non-parasitic :

3. Flowers all bisexual :

4. Ovary superior :

5. Plants with tendrils ..... Polygonaceae (in part)

5. Plants without tendrils :

6. Leaves exstipulate :

7. Trees ..... Proteaceae

7. Herbs or shrubs :

8. Fruit an achene enclosed in the perianth ..... Nyctaginaceae

8. Fruit a membranous utricle :

9. Flowers bracteate :

10. Bracts and tepals hyaline, membranous... Amaranthaceae (in part)

10. Tepals fleshy, not membranous ..... Basellaceae

9. Flowers ebracteate; tepals green ..... Chenopodiaceae

6. Leaves with ochreate stipules ..... Polygonaceae (in part)

4. Ovary inferior or half inferior ; gynostemium present ..... Aristolochiaceae

3. Flowers unisexual or polygamous :

11. Flowers in catkin or spikes :

12. Stem and branches phylloclades, ribbed...Casuarinaceae

12. Stem and branches not phylloclades, and not ribbed :

13. Perianth absent ..... Piperaceae

13. Perianth present :

14. Fruit a utricle ..... Amaranthaceae (in part)

14. Fruit a capsule ..... Euphorbiaceae (in part)

11. Flowers not in catkin or spike :

15. Ovary trilocular with 1 or 2 ovules in each carpel ..... Euphorbiaceae (in part)

15. Ovary monocarpellary :

16. Fruit multiple, a syconus ..... Moraceae (in part)

16. Fruit simple :

17. Fruit enclosed in fleshy perianth ..... Moraceae (in part)

17. Fruit not enclosed in fleshy perianth ..... Urticaceae

Class II. MONOCOTYLEDONS

1. Stems not developed, plant reduced to a small, undifferentiated, flat, floating frond ..... Lemnaceae

1. Stems well developed; plants not reduced as in above :

2. Flowers much reduced, in the axils of dry, chaffy scales (glumes), arranged in spikelets :

3. Stems generally solid and triangular; fruit an achene .....Cyperaceae

3. Stems generally hollow and cylindrical; fruit a caryopsis .....Poaceae

2. Flowers not as above, usually showy, rarely inconspicuous, but not in the axils of dry chaffy scales (glumes) :

4. Plants aquatic, semi-aquatic or marsh-loving :

5. Carpels 1 or more, usually distinct :

6. Flowers unisexual in superimposed dense spikes ..... Typhaceae

6. Flowers unisexual or bisexual, but are not arranged as above :

7. Ovary inferior ..... Hydrocharitaceae (in part)

7. Ovary superior :

8. Pistil 1-ovuled :

9. Perianth showy ..... Alismataceae

9. Perianth inconspicuous or none :

10. Flowers crowded in spikes....Potamogetonaceae

10. Flowers solitary or few together, axillary .....Naiadaceae

8. Pistil 2-many-ovuled; flowers in umbels ..... Butomaceae

5. Carpels united into a syncarpous ovary :

11. Ovary inferior :

12. Plants epiphytic, flowers with gynostemium ..... Orchidaceae

12. Plants not as above, gynostemium absent :

13. Flowers solitary on a spiral peduncle ..... Hydrocharitaceae (in part)

13. Flowers in umbels or spikes.. Amaryllidaceae (in part)

11. Ovary superior ..... Eriocaulaceae

4. Plants terrestrial :

14. Plants climbing :

15. Flowers unisexual; bulbils present... Dioscoreaceae

15. Flowers bisexual; bulbils absent .... Liliaceae (in part)

14. Plants not as above :

16. Plants distinctly woody :

17. Leaves radical, simple, entire; flowers on stout long scapes .....Agavaceae

17. Leaves not radical, simple (palmate) or compound (pinnate), forming a crown at the top of an unbranched stem; flowers not as above .....Arecaceae

16. Plants not woody :

18. Ovary inferior .....Cannaceae

18. Ovary superior :

19. Inflorescence a true spadix...Araceae

19. Inflorescence not as in above:

20. Flowers usually subtended by boat-shaped spathes ...Commelinaceae

20. Flowers not subtended by
boat-shaped spathes :

21. Flowers in densely crowded,
terminal umbellate
inflorescence ..... Amaryllidaceae
(in part)

21. Flowers in terminal few
to many flowered racemes,
never umbellate ..... Liliaceae
(in part)