ARTIFICIAL KEY TO THE FAMILIES OF PAVAGADH

With a view to help in the identification of the plant, an artificial Key to families has been worked out, which takes into account as many characters as possible. The divisions followed by Nairne in his book on the Flowering Plants of Western India have been used. The author has, however, attempted to make the Key applicable to the present Flora: but in doing so, the exceptions have been considered also as far as possible. A plant genus or even family has been listed under as many headings as necessary.

(Dicotyledons)

1. Plants having the stamens and pistil surrounded within the calyx by separate petals, to which they are not attached:
   2. Sepals generally distinct, free from the ovary. Torus small, rarely expanded into a disk; petals inserted on the torus, and therefore below the ovary, or more rarely on the base of the calyx; stamens indefinite or definite, inserted as the petals, free from them, or slightly cohering at the base. Ovary superior:
      3. Flowers regular; stamens indefinite:
         4. Ovary apocarpus:
            5. Plants aquatic ..... NYMPHAEACEAE
            5. Plants not aquatic ..... ANNONACEAE
         4. Ovary syncarpous:
            6. Placentation parietal:
               7. Androphore or gynophore present ..... CAPPARIDACEAE (in part)

7. Androphore or
gynophore absent:
8. Plants with juice ..... PAPAVERACEAE
8. Trees or shrubs
without juice ..... FLACOURTIACEAE

6. Placentation axile:
9. Seeds covered with
silky cotton hairs ..... BOMBACACEAE
9. Seeds not covered with
silky cotton hairs:.....
10. Plants with mucilage,
calyx free, and
fibre-yielding ..... TILIACEAE
10. Plants without mucilage,
calyx united, and not
fibre-yielding ..... STERCULIACEAE

3. Flowers regular; stamens definite:
11. Plants climbing or trailing shrubs . MENISPERMACEAE
11. Plants usually not climbing
or trailing:
12. Placentation parietal ..... CAPPARIDACEAE
(in part)
12. Placentation axile ..... ELATINACEAE
12. Placentation free central:
13. Succulent fleshy herbs
with swollen nodes ..... PORTULACACEAE
13. Plants not succulent ..... CARYOPHYLLACEAE

3. Flowers regular; stamens indefinite, united into a column or tube: epicalyx may be present, anthers kidney-shaped ..... MALVACEAE

3. Flowers irregular:

14. Sepals 5 separate, inner 2 larger, petaloid, petals usually 3, jointed to the staminal tube, seeds with strophiole at the anterior ends ..... POLYGALACEAE

14. Sepals united, flower parts in 5's; stamens 5 or numerous, seeds not as above ..... VIOLACEAE

2. Sepals either distinct or partly united into a calyx, generally small and free from the ovary. Torus generally expanded into a disk. Petals generally equal in number to the sepals, or fewer by abortion. Stamens generally equal in number to the petals, sometimes double as many, or fewer by abortion, inserted round or within or upon the disk. Ovary generally superior or immersed in the disk:

15. Flowers regular; disk conspicuous:

16. Ovules many in each ovary:

17. Armed trees or shrubs with gland-dotted compound leaves ... RUTACEAE

17. Shrubs and trees with pinnately compound leaves without glands ... SIMARUBACEAE

16. Ovules few or solitary in each ovary:

18. Ovary 1-celled, one ovule: scandent shrubs, flowers with urceolate, 4-5 - toothed perianth, fruit is a drupe ..... OPILIACEAE

18. Ovary 2 - or more - celled, ovules one or more in each cell:

19. Flowers regular, if irregular then a twining herb with inflated capsules (Cardiospermum):

20. Plants erect, if climbing, then leaves not opposite and often bearing tendrils; fruit not a winged samara:

21. Leaves compound; if simple, then plants climbing by tendrils:

22. Filaments united, forming a complete tube; leaflets oblique ..... MELIACEAE

22. Filaments free, or connate at the base; leaflets not oblique:

23. Plants with paripinnate leaves, or twining herbs with biternate leaves; filaments hairy; petals if present, then scaly and with crested appendages or tuft of hairs ..... SAPINDACEAE (in part)

23. Plants with imparipinnate leaves; filaments glabrous; petals without any appendages:

24. Trees with balsaminous sap; calyx broadly campanulate and 5 - fid above; petals and stamens inserted at the base or margin of the disk ..... BURSERACEAE

24. Plants without balsaminous sap; calyx not broadly campanulate; petals and stamens not inserted as above:

25. Trees; leaves exstipulate, stamens 8-10, alternate to the petals, fruit a drupe or a nut ..... ANACARDIACEAE (in part)

25. Tendrilar climbers, or undershrubs, or shrubs; stamens 4-5, opposite to the petals, fruit a berry ..... AMPELIDACEAE

21. Leaves simple; plants not climbing by tendrils:

26. Unarmed shrubs or trees with resinous juice; fruit a nut or a drupe ..... ANACARDIACEAE (in part)

26. Armed trees or scandent shrubs without resinous juice:

27. Fruit is a drupe more than 5 mm. in diameter ... RHAMNACEAE

27. Fruit is a capsule or berry, and if a drupe, then less than 5 mm. in diameter ..... CELASTRACEAE

15. Flowers regular; disk inconspicuous or none:

28. Leaves simple: stamens 5-10 (5 staminodes), monoadelphous ..... LINACEAE

28. Leaves compound:

29. Trifoliate compound ..... OXALIDACEAE

29. Pinnately compound ..... ZYGOPHYLLACEAE

15. Flowers irregular:

30. Trees with paripinnate leaves, or twining herbs with biternate leaves ..... SAPINDACEAE (in part)

30. Succulent herbs with simple leaves (lobed or entire), sepals (posterior) spurred ..... BALSAMINACEAE

30. Soft-wooded trees with compound leaves, mostly tripinnate, seeds winged ..... MORINGACEAE

2. Sepals generally more or less united into a tube adnate to the ovary, very seldom altogether free; disk rarely apparent. Petals generally equal in number to the sepals, or fewer by abortion, inserted on the top of the calyx tube. Stamens definite or indefinite inserted on the calyx; ovary generally inferior, or included in the calyx tube, but occasionally exserted:

31. Flowers regular, stamens definite:

32. Ovary superior, free from the calyx or perianth:

33. Ovary monocarpellary: leaves mostly bipinnate, stamens generally 10 ..... LEGUMINOSAE (MIMOSACEAE)

33. Ovary syncarpous:

34. Placentation axile ..... LYTHRACEAE

34. Placentation free central . CARICACEAE

34. Placentation not as above . MOLLUGINACEAE

32. Ovary inferior, or half inferior, completely or partly adnate to the calyx or perianth:

35. Herbs or shrubs climbing with the help of spirally twisted tendrils ..... CUCURBITACEAE

35. Plants not climbing with the help of tendrils:

36. Ovary one celled:

37. Placentation parietal . SAXIFRAGACEAE (in part)

37. Placentation not parietal ..... COMBRETACEAE

36. Ovary 2 - or more celled: placentation axile ..... SAXIFRAGACEAE (in part)

31. Flowers regular, stamens indefinite:

38. Ovary superior, free from the calyx or perianth: ovary monocarpellary; trees or shrubs, stamens much exserted ..... LEGUMINOSAE (MIMOSACEAE)

38. Ovary inferior, or half inferior, completely or partly adnate to the calyx or perianth:

39. Armed shrubs; branches modified into phylloclades, leaves scale-like, deciduous ..... CACTACEAE

39. Unarmed plants:

40. Leaves with intramarginal veins and gland-dotted ..... MYRTACEAE

40. Leaves without intramarginal veins and not gland-dotted ..... ALANGIACEAE

31. Flowers irregular:

41. Ovary superior: monocarpellary, petals large ..... LEGUMINOSAE

42. Corolla papilionaceous, stamens diadelphous or monadelphous or free ..... (PAPILIONACEAE)

42. Corolla not papilionaceous, stamens free ..... (CAESALPINIACEAE)

41. Ovary inferior: inflorescence an umbel ..... UMBELLIFERAE

1. Petals within the calyx, more or less united into a lobed corolla; calyx generally persistent, of 4 or 5 sepals. Stamens usually few, affixed to the limb of the corolla or sometimes inserted with it:

43. Stamens 4 or 5; lobes of calyx and corolla as many:

44. Stamens 5; corolla regular:

45. Corolla united with bicarpellary syncarpous ovary:

46. Plants with milky juice:

47. Stamens sagittate, pollen in anthers, no gynostemium ..... APOCYNACEAE

47. Stamens not sagittate, pollen in pollinia, gynostemium:

48. Filaments united, often very short; anthers with horny wings; pollen in waxy masses, transported by means of a horny capsule to which they are attached by caudicles of varied form and size ..... ASCLEPIADACEAE

48. Filaments free from each other, anthers without horny wings; pollen granular, in tetrads, transported on a spathulate carrier ..... PERIPLOCACEAE

46. Plants without milky juice:

49. Ovules many ..... SOLANACEAE

49. Ovules few ..... CONVOLVULACEAE

45. Corolla gamopetalous, ovary superior, carpels usually more than two:

50. Ovary one celled, placentation free central ..... PRIMULACEAE

50. Ovary one celled with one ovule, placentation basal ..... PLUMBAGINACEAE

44. Stamens 4 or 5; flowers regular:

51. Plants with inter or intra petiolar stipules ..... RUBIACEAE

51. Plants without inter or intra petiolar stipules:.....

52. Leaves opposite, rarely alternate (Limnanthemum), ovary one-celled, inflorescence not a scorpioid cyme ..... GENTIANACEAE

52. Leaves alternate, ovary two-celled, inflorescence a scorpioid cyme ..... BORAGINACEAE

43. Stamens 4, didynamous, or two; flowers bilabiate:

53. Leaves simple:

54. Inflorescence on axillary or terminal peduncles, cymose, rarely 1-flowered ... GESNERIACEAE

54. Inflorescence verticilaster and plants aromatic ..... LABIATAE

54. Inflorescence not verticilaster, plants may be aromatic:

55. Plants with glands and glandular hairs ..... PEDALIACEAE

55. Plants without glands and glandular hairs:

56. Ovary deeply four lobed, fruit not elastically dehiscent ..... VERBENACEAE

56. Ovary not deeply four lobed, fruit elastically dehiscent, inflorescence a spike with bracts and bracteoles ..... ACANTHACEAE

56. Ovary not deeply four lobed, fruit not elastically dehiscent, inflorescence not in a spike, bracts and bracteoles absent ..... SCROPHULARIACEAE

53. Leaves compound and seeds winged ..... BIGNONIACEAE

53. Leaves absent (reduced to scales), plants root-parasitic ..... OROBANCHACEAE

43. Plants not as above:

57. Ovary inferior, one-celled, stamens 5, syngenesious, inflorescence capitulum or head ..... COMPOSITAE

57. Ovary superior, carpels usually more than two, inflorescence not a capitulum or head:

58. Ovary two to many celled, placentation axile with one ovule in each cell, plants with milky juice ..... SAPOTACEAE

58. Ovary two to many celled, placentation not axile, styles 6 to 8 ..... EBENACEAE

1. Plants without a corolla, the perianth generally without strong colouring, its lobes or segments in one or two series much alike:
   59. Ovary superior, free from the calyx or perianth:
      60. Ovules many in each ovary, inflorescence not a large dense spike (Celosia):
         61. Succulent herbs, shrubs or climbers (twiners), flowers regular ..... CHENOPODIACEAE
      60. Ovules few or solitary in each ovary, if many, inflorescence a large dense spike (Celosia):
         62. Trees leafless (reduced to many-toothed sheaths surrounding the nodes of the branches), stamen solitary, fruit is a winged nut protected by hardened bracts and bracteoles (ultimately looking like a cone) ..... CASUARINACEAE
         62. Plants with leaves, if absent, then nodes not with a whorl of scales:
            63. Stamens 10 or fewer:

64. Ovary 1-celled, one ovule, leaves not peltate, prominent disk not present inside the calyx; if ovules more than one in one-celled ovary, then inflorescence a dense spike (Celosia):

65. Connate stipules forming a tube (ochrea), herbs having alternate leaves, flowers small, fruit is a triangular nut ..... POLYGONACEAE

65. Stipules absent, if present, not forming a tube, fruit is not a triangular nut (nutlet):

66. Flowers in spikes or globose heads, seeds lenticular ..... AMARANTHACEAE

66. Flowers not in spikes or globose heads, seeds not lenticular:

67. Prostrate herbs; shrubs or trees, leaves opposite, unequal in each pair, perianth tubular,petaloid, lower part inflated, adherent and persistent in fruit, upper portion plicate in bud, with 5 vertical narrow plates outside ..... NYCTAGINACEAE

67. Trees or shrubs, if herbs then erect; leaves if opposite not slightly unequal, perianth calycine or scarious and structure not as above:

68. Herbs or undershrubs with stinging hairs ..... URTICACEAE

68. Trees without stinging hairs:

69. Trees without milky or "watery" sap ..... ULMACEAE

69. Trees with milky or "watery" sap ..... MORACEAE

64. Ovary 2 - or more - celled, if one 1-celled, leaves peltate (Macaranga), prominent disk present inside the calyx, or ovules more than one and anthers didymous or lunate (Antidesma); ovules one or more in each cell:

70. Plants with milky juice, flowers unisexual with tricarpellary superior ovary ..... EUPHORBIACEAE (in part)

63. Stamens more than 10:

71. Plants with milky juice, flowers unisexual, ovary tricarpellary, superior ..... EUPHORBIACEAE (in part)

59. Ovary inferior, or half inferior, completely or partly adnate to the calyx or perianth:
    72. Plants parasite: flowers regular:
        73. Herbs or shrubs, leafy or leafless, usually parasitic on the branches of trees ..... LORANTHACEAE
        73. Herbs, shrubs, or trees often semi-parasitic on roots ..... SANTALACEAE
    72. Plants not parasitic: flowers irregular; climbers or trailing herbs ..... ARISTOLOCHIACEAE

(Monocotyledons)

1. Foliage of the palm type: large leaves forming a crown at the apex of the unbranched stem, flowers in simple or compound spadix ..... PALMAE
1. Foliage not palm-like:
    2. Perianth none or rudimentary and the parts of bristles or scales, not petaloid:
        3. Plants grass-like: flowers in the axils of dry, chaffy scales; arranged in aggregates of spikelets, i.e. spike, racemes, panicles, etc.: leaf bases sheathing the stem:
            4. Stem hollow, jointed; in fruit the single seed is fused with the ovary wall (a grain); sheath open along one side ..... GRAMINEAE

4. Stem solid; in fruit the single seed attached at but one place to the ovary wall (an achene); sheath closed ..... CYPERACEAE

3. Plants not grass-like: flowers not in the axils of dry chaffy bracts (glumes or scales): herbs growing in moist situations and rocky soils, leaves broad and long petioled ..... ARACEAE

2. Perianth present, usually of 2 series, at least the inner petaloid, not of bristles or scales:

5. Ovary superior:

6. Outer segments of perianth calyx-like and different from the inner corolla-like segments:

7. Leaves few, not overlapping or sheathing ..... LILIACEAE (in part)

7. Leaves many, overlapping or sheathing ..... COMMELINACEAE

6. Outer and inner segments of perianth essentially alike, at least all petaloid:

8. Plants not or only slightly xerophytic: leaves not fibrous; style usually divided, flowers variously arranged ..... LILIACEAE (in part)

8. Plants usually very xerophytic and woody: leaves mostly fibrous, sword-like, in dense basal or apical tufts; style simple, flowers commonly in large panicles ..... AGAVACEAE (in part)

5. Ovary partly or wholly inferior:

9. Pollen in pollinia, gynostemium present: plants usually epiphytic ..... ORCHIDACEAE

9. Pollen not in pollinia, gynostemium absent:

10. Fertile stamens 1 or 2, the others often becoming petaloid staminodia and more conspicuous than the perianth: plants scitaminaceous ... ZINGIBERACEAE

10. Fertile stamens 3 or more; no petaloid staminodia:

11. Climbing vines with axillary bulbils: dioecious ..... DIOSCOREACEAE

11. Plants not vines: flowers bisexual:

12. Ovary only partially inferior: small herbs, scapose; leaves linear .. LILIACEAE (in part)

12. Ovary wholly inferior: flowers many in large panicles ..... AGAVACEAE (in part)