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Critical Survey of Dominant Herbs and Shrubs of Family Fabaceae in Jalgaon District of Maharashtra, India

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Abstract

Taxonomic investigation on the family Fabaceae growing throughout the Jalgaon district of Maharashtra was carried out. A total of 19 species under 13 genera of the family Fabaceae were collected and recorded for their use in various ailments. A complete taxonomic account of each species has been given along with their scientific name, local name, habit, habitat, flower colour, flowering season, uses and specimens examined. Out of the total number of species *Clitoria ternatea* L., *Abrus precatorius* L., *Cajanas cajan* (L.) *Rhyncosia minima* (L.), *Zornia gibbosa* (L.), *Mucuna pruriens* (L.) were common while *Clitoria annua* Dlz., *Cullen corylifolia* L., *Teramnus labialis* (l.f.) Spreng, *Stylosanthes fruticosa* (Retz.), *Rhyncosia capitata* Heyne ex Roth, *Vicia sativa* L. species are rare in the study area.

Keywords: Fabaceae, Taxonomic studies, Jalgaon, Maharashtra, rare species,

Floristics (from "Flora") is a sub domain of Botany and biogeography that studies distribution and relationships of plants species over geographic areas. The present study deals with the floristic survey (Specially Papilionaceous herbs and shrubs) of Jalgaon. Floristic study in Maharashtra dates back from the work of Theodore Cooke (1905) however, Flora of Maharashtra Naik et. al. 2000.

The Fabaceae or Leguminosae, commonly known as the legume, pea, or bean family, are and ecologically important family of flowering plants. The group is the third largest land plant of family. Behind only the Orchidaceae and Asteraceae, with 730 genera and over 19,400 species (A. H. M. Rehman, 2015). Plants of this family are found throughout the world growing in many different environments and climates.

Review of floristic account of Jalgaon District

Jalgaon is situated on the bank of Girna river of Khandesh of Maharashtra. Inspite of its high plant diversity and luxuriant habitat, stray reference are found to the plants of the Jalgaon in well known floras such as "Flora of presidency of Bombay" (Cook, 1901-1908), "Flora of Jalgaon district" (S. R. Kshirsagar 2000-2006).

Most of the floristic works on the Jalgaon were published during 19th century. Cooke had reported some 40 plants from the study area. S.R. Kshirsagar in his work of "Forest Flora of Jalgaon District" had reported and published 96 species. Thus, it can be said that during last phase of exploration of the district only stray collections were made with respect to family Papillionaceae. So to locate and examine specimens collected by earlier workers, it was therefore decided that the herbaceous account of

Papilionaceous herbs and shrubs of Jalgaon should be properly presented and field notes should be retained.

Study area: The present taxonomic study is carried out in Jalgaon district that includes varied topographical features and landscapes, consisting of hills and forest, stretch of barren plain, low rolling rocky hills and densely gulled topography near major river banks.

Geographical Position: Jalgaon district lies between 20 ^{0} and 21 ^{0} north latitude and 74 ^{o} 55, and 76 ^{0} 28, east longitudes. On its basis location in the upper Tapi basin, it forms a distinct topographical unit. The district at present comprises thirteen administrative Tehsils. The district headquarter is located at Jalgaon. The total forest area in the district is 72685.27 hectares.The climatic changes have great influence on the flora. Majority of the herbaceous elements sprout out on the onset of monsoon and complete their life cycle generally by the end of November. The species which withstand cold weather continue to grow onwards, the highest number of species are noted during October.

Materials and methods:

The present study is a floristic survey. For that, visits are made often during the month of October to January and February to April of year 2024. During this visits field note is recorded. The various observations like habit, flowering period and morphological characters etc. are recorded. A total of 19 species under 13 genera of the family Fabaceae were collected and identified. Plants were collected, only those which are abundant. Herbarium specimen are prepared, collected plants were identified. The collected specimens were identified by studying related Taxomonic books and flora like flora of Maharashtra by N. P. Singh and S. Kartikeyan (1996), Flora of Nagpur by N. R. Ugemuge (1986), Flora of presidency of Bombay by Theodore Cooke (1950) and flora of Marathwada by V. N. Naik (1998). In Some cases the specimens were consulted with the expert, for the identification and up to date nomenclature. The photographs of observed plants species are taken. Plants observed are tabulated as applying botanical name, uses etc. Total number of genera and species are recorded in the observation table with their uses.

Observations: Following plant species belonging to family fabaceae has been observed.

Genus – *Teramnus* P.Br.:-

1.Teramnus labialis(L.f.) Spreng.Syst.Veg.3:235.1825; Baker in Hook. f. Fl. Brit. India 2:184.1876; Cooke, fl. Pre. Bombay 1:387.1958 (Repr.); Sanj. Legumes of India 261.1991.*Glycine labialis* L.F.Suppl.325.1781.‘ Ran-udid’.

herb stem, twining, leaflets 3,1.5-9.0x0.8-5.4 cm, ovate, elliptic or oblong, appressed-hairy beneath .Flowers violet-purple, fading pale blue or white, in axillary & terminal racemes. Pods linear, flat, turgid, beaked, seeds 2-9.

Genus – *Cajanas* L.

1.Cajanus cajan (L.) Millsp.In Field Columb.Mus.Bot.2, (1): 53.1900;Van der Maesen in Agric. Univ. Wageningen Papers 85 (4): 65,f.4, 2-3, 5-.(1985) 1986; Sanj. Legumes of India 100.1991.*Cytisus Cajan* L.Sp.Pl.739.1753.*Cajanus indicus* Spren.Syst.Veg.3:248.1826; Baker in Hook.f.Fl.Brit India 2:217.1876; Cooke, Fl. Pres. Bombay 1:435.1958(Repr.).‘Tur’.

Shrubs, 0.5-0.3 M high, leaflets 3,1.3-13.7x0.3-5.5,ovate –elliptic or lanceolate, rarely obcordate, glandular-punctate, apex acuminate, acute or mucronate, bases cuneate. Flowers many yellow in colour, racemes, pods oblong or sickle shape seeds. Globose or ellipsoid.

2.Cajanus scarabaeoides (L.) du-Petit-Thours in Dict.Sci.Nat.6:617.1817 (*' Cajan scarabaeoide'*) ; Van der Maesen in Agric. Univ. Wageningen Papers 85 (4) :183, 189 f.(1985) 1986; Sanj.Legumes of India 103.1991.*Dolichos scarabaeoides* L.Sp.Pl.726.1753.*Atylosia scarabaeoides* (L.) Bth.In Miq.Pl.Jungh.242.1852; Baker in Hook. f. Fl. Brit. India 2:215.1876; Cooke, Fl. Pres. Bombay 1:409. 1958 (Repr.) 'Rantur.

herbs, twining, leaflets 2.0-5.5x1.0-2.7 cm, sessile, flowers pale brown yellow, solitary in axillary racemes. Pods 1.5-2.0 cm long oblong, brown, hairy, seeds 3-5 rectangular, black.

Fls & frts- June-February.

Genus*:- Rhynchosia* Lour.(nom.Cons.)

1.Rhynchisia cpitata (Heyne ex Roth) DC.Prodr.2:386.1825; Sanj.Legumes of India 237.1991.Glycine capitat Heyne ex Roth, Nov.Pl.Sp.346.1821 non Nomismia Capitata (Heyne ex Roth), Wight & Arn.Prodr.237.1834.Rhynchosia aurea auct.Non (Willd.) DC.1828; Baker in Hook f.Fl.Brit.India 2:221. 1876; Cooke, Fl.Pres Bombay 1:415.1958 (Repr.) 'Papra'.

herbs,3-foliate, leaflets,sunsessile, 1.5-4.3x1.8-4.6 cm ovate,obaovate or ovate-rhomboide, sparsely hairy, apex acute or subacute .flower yellow, axillary.pods obliquely,mucronate,transversely striate, hairy, seeds2,flwrs &fruit- August- October.

2.Rhyncohsia minima (L.) DC.Prodr.2:385. 1825; Baker in Hook. f. Fl. Brit. India 2:223.1876 ; Cooke, Fl. Pres. Bombay 1:414.1958 (Repr.); Nooteb. In Reinwardtia 5: 439.1961 ; Sanj. Legumes of India 239.1991. *Dolichos minimus* L.Sp.Pl.726.1753. *Rhynchosia minima* var. *Laxiflora* (Camb.) Baker in Hook. f. op. Cit; Cooke, Op. Cit.

Herbs, slender, twining or trailing, leaflet 1.4-4.5x0.3-2.2 cm ovate- rhomboid, lanceolate- rhomboid or nearly orbicular, pubescent below, apex obtuse, subacute or acute to acuminate at apex, base rounded or subacute. Flower reddish yellow, 6-12 in axillary lax raceme. Pods obliquely long compressed, seeds globose.

Fls & frts- September- October.

Genus –*Clitoria* L.

1.Clitoria annua Dlz.In kew J.Bot 2:35.1850; Baker in Hook f. fl. Brit India.2:208.1876; Cooke, Fl. Pres. Bombay 1;406.1958 (Repr.); Varghese et al.In J.Econ.Tax.Bot.14:642.1990; Sanj. Legumes of India 114.1991.

Herbs 30-60 cm high. leaves imparipinnate, leaflets 5, 1.5-7.5 x0.5-0.3 cm, elliptic – oblong or ovate – lanceolate, strigosely hairy, apex acute, flowers blue, 2 in axillaries beaked seeds 4 brown.

2.Clitoria ternatea L.Sp.Pl.753.1753; Baker in Hook. f. Fl. Brit India 2:208.1876; Cooke, Fl. Pres. Bombay 1: 405.198(Repr.); Sanj. Legumes of India 114.1991.

Perennials, twining leaflets 5-7,1.3-3.5x1-2 cm elliptic- oblong, sparsely hairy, apex obtuse, base acute or obtuse. Flower bright blue axillary solitory. Pods 5.5 -6.5 x0.3-0.5cm sharply beaked With 5 persistence sepals seeds 6-10 yellowish -brown.

Fls & frts-May- December

Genus – *Mucuna* Adans. Nom. cons.

1.Mucuna pruriens (L.) DC., Prodr. 2: 405. 1825. *Dolichos pruriens* L. In Stickman, 31; Santapau in Rec. Bot . Surv. Ind . 16(1): 74. 1953; Cooke , Fl. Pres. Bombay 1: 388. 1958(Repr.ed.). "Khaj-Kuiri'.

twinners, extensive, leaflets 3, 4.2-15.0 x2.0-9.5 m, ovate –triangular, rhomboid-ovate, apex subcute, base cuneate or inequilateral, appressed black in axillary curved on both sides, densely bristly. Seeds 4-6, ellipsoid.

Fls and frts-January.

Genus –*Tephrosia.* Pers. Nom. cons.

1.Tephrosia purpurea (L.) Pers., Syn. Pl. 2:329. 1807; Baker in Hook. f. Fl. Brit. India 2:122. 1876; Cooke, Fl. Pres. Bombay 1:346. 1958 (Repr.ed.). *Craca Purpurea* L. 752. `1753. 'unhali'.

herbs or undershrubs,0.5-1.0 m high, leaflets 13-19, oblanceolate, apex obtuse retuse or mucronate base cuneate. Flowers bright rosy- purple or violet. Pod linear, slightly curved, mucronate seeds 5-6.

Fls & frts – Almost year round.

2.Tephrosia pumila (Lam.) Pers.:- (L.) Pers., Syn. Pl. 2:329. 1807. *Galega pumila* Lam., Encycl. 2: 599. 1786. Tephrosia *purpurea* (l.)Pers. Var. *Pumila* Baker in Hook. f., Fl. Brit. India 2:113. 1876; Cooke, Fl. Pres. Bombay 1 :347, 1958 (Repr.ed.).

Prostate or procumbent herbs. Stem spreading. Leaves pinnate, 1.5-4 cm long; Leaflets 5-11, obovate-oblong, oblanceolate, appressed hairy. Flowers white when fresh, turning pink on withering, 1-3 in terminal and leaf – opposed racemes. Pods 3-4X0.3 cm, oblong, 8-12 seeded, pubescent, trapezoid ; strophiole subapical black – brown.

Genus – *Zornia* J. F. Gmel.

1 Zornia gibbosa (L.) Pres., Syn. 2: 318. 1807. *Hedysarum diphyllum* L., Sp. Pl. 747. 1753. *Zornia gibbosa* Span. In Linnaea 15: 192. 1841. Z. Diphylla Baker 1: 355. 1958 (Repr.ed.).

herbs, prostrate, diffused or suberect, 10-30 cm high, leaflets 2, 1-2x 0.2-1.0 cm, linear lanceolate or ovate – lanceolate or rounded, black dotted. Flowers yellow, pods 1-2 cm long concealed by leafy peltate bracts. Seeds yellowish- brown

Flrs& fruts – July-February.

Genus – *Abrus* Adans.

1.Abrus precatorius L., Syst. NAYT.ED. 12:427. 1767; Baker in Hook. f. Fl. Brit. India 2:175. 1876; Cooke, Fl. Pres. Bombay 1:382. 1958 (Repr.ed.). "Gunj".

twinners, perennial.leaves 8-10 cm long, leaflets 0.5-1.8x o.3-0.8 cm,oblong or elliptic –oblong, glabrous above, appressed- hairy beneath, flowers pinkish –purple, fading white in racemes.pod 2-4cm long, linear –oblong, beaked,seeds 3-5 ellipsoid, bright scarlet with a black shopt.

Flrs& fruts – August- March.

Genus - *Stylosanthes* Swartz.

1.Stylosanthes fruticosa (Retz) Alst. in Trim., Handb. Fl. Ceylon 6 (Suppl.) 3:77. 1931. *Arachis fruticosa* Retz., Obs. Bot. 5: 26. 1788. *Stylosanthes mucronata* Willd., Sp. Pl. 3:1166; Cooke, Fl. Pres. Bombay 1: 356. 1958 (Repr.ed.)

herbs or undershrubs. Leaflets 2.5x0.5cm lanceolate, apex mucronate, base subacute. Flowers yellow, solitary, axillary pods oblong,
fls & frts- September.

Genus – *Taverniera* Pres. Nom.cons.

1.Taverniera cuneifolia (Roth) Arn.. Nov. Act. Nat. Cur. 18 (1): 332. 1836; Ali in Biologia 12: 75. 1966; Sanj. Legumes of India 254. 1991. *Hedysarum cuneifolium* Roth, Nov. Pl. Sp. 358. 1825. *Taverniera nummularifolia* auct. Non Dc. 1825; Baker in Hook. f.Fl. Brit. India 2: 140. 1876 (‘*nummularia*’) ; Cooke , Fl. Pres. Bombay 1:353. 1958(Repr.) ‘Jethmad’.
Erect, branched undershrubs. Leaves 1 foliate,0.4-1.3 X0.3-0.9 cm, obovate to lanceolate, mucronate, entire, appressed- pubescent .flowers few, reddish, in short, axillary, lax raceme. Pods 0.5-0.7 cm long, 1-2 jointed, echinate, compressed. Seeds yellowish –brown, elliptic or subreniform, glabrous, smooth.
Fls. & frts.- August-December.

Genus - *Cullen.* L.

1.Cullen corylifolia L., Sp. Pl. 746.1753; Baker in Hook.f. Fl. Brit. India 103. 1876; Cooke, Fl. Bombay 1:314. 1958 (Repr.ed.). “Bavchi”.
Erect annuals, 30-90 cm or more tall. Stem and branches grooved, with spinous purple glands and few appressed or spreading white hairs. Leaves 1 foliate, 3-8 X3-6 cm, gland –dotted, broadly ovate or orbicular, inciso- dentate, pubescent. Flowers white, blue or pink, axillary, solitary or in dense, short, axillary racemes. Pods ca 7 x 4 mm, ovoid-oblong, compressed, black, punctate, mucronate, black when ripe. Seed one, smooth, glabrous, reniform, adhering to the pericarp.
Fls & frts- October- March.

Genus – *Vicia* L.

1.Vicia sativa L.Sp. Pl. 736. 1753; Baker in Hook. f. FL. Brit. India 2: 178. 1876; Shinde & S. M,.Almeid IN j Bombay \nat. Hist.Soc. 84:466, f.2. (1987) 1988; sanj. Legumes of India 270. 1991.
Herbs, tendrillar. Leaves 1.8-2.5 cm long ; leaflets 4-8 pairs,0.4-1.5 cm long, appressed pubescent, upper leaflets modified into tendrils. Flowers red- blue, solitary or geminate.
Fls & frts : September – January

Results and conclusion:

Total 19 species belonging to 13 genera were collected and identified in present investigation.
The plants of family Fabaceae shows typical Papilionaceous corolla and are represented by large number of species in the region.3 species of *Alysicarpus* , 2 species of *Rhyncosia* , 2 species of *Cajanus* , 2 species of *Tephrosia* , 2 species of *Clitoria* , and individual representative of *Teramnus labialis* (l.f.) Spreng. , *Cullen corylifolia* L., *Zornia gibbosa* (L.), *Mucuna pruriens* (L.) DC. , *Abrus precatorius* L., *Taverniera cuneifloia* (Roth) Arn., *Stylosanthes fruticosa* (Retz.), *Vicia sativa* L. of Family Fabaceae are collected and identified.
Out of the total number of species *Clitoria ternatea* L., *Abrus precatorius* L., *Cajanas cajan* (L.) *Rhyncosia minima* (L.), *Zornia gibbosa* (L.), *Mucuna pruriens* (L.) were common while *Clitoria annua* Dlz., *Cullen corylifolia* L., *Teramnus labialis* (l.f.) Spreng, *Stylosanthes fruticosa* (Retz.), *Rhyncosia capitata* Heyne ex Roth, *Vicia sativa* L. species are rare in the study area.

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