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RESEARCH ARTICLE

DIVERSITY OF ANGIOSPERM CLIMBER SPECIES IN RAJSHAHI REGION, BANGLADESH

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Abstract

Diversity angiosperm climber species in Rajshahi region, Bangladesh was carried out from January 2015 to November 2019. An extensive floristic survey an angiosperm climbers and collection have been made throughout the study area. A total of 88 species belonging to 55 genera under 25 families were recorded. Distribution of angiosperm plant species in the families shows variation. The family Cucurbitaceae is represented by 27 species. Fabaceae is represented by 12 species. Convolvulaceae is represented by 9 species. A single species is represented by 13 families while 2 to 4 species is represented by 9 families. Out of 88 species, 53.40% species was common and 46.59% was rare species in the study area. For each species scientific name, local name, family, flowering and fruiting time and status of occurrence are provided with specimen citation.

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Introduction:-

The flowering plants (angiosperms), also known as Angiospermae Lindl or Magnoliophyta, are the most diverse group of land plants. Angiosperms are seed-producing plants like the gymnosperms and can be distinguished from the gymnosperms by a series of synapomorphies (derived characteristics). These characteristics include flowers, endosperm within the seeds, and the production of fruits that contain the seeds. Etymologically, angiosperm means a plant that produces seeds within an enclosure; they are fruiting plants, although more commonly referred to as flowering plants. The ancestors of flowering plants diverged from gymnosperms around 245-202 million years ago, and the first flowering plants known to exist are from 160 million years ago. They diversified enormously during the Lower Cretaceous and became widespread around 120 million years ago, but replaced conifers as the dominant trees only around 60-100 million years ago (Lindley, 1830).

A vine is any plant with a growth habit of trailing or scandent (that is, climbing) stems, lianas or runners. The word vine can also refer to such stems or runners themselves, for instance, when used in wicker work. In parts of the world (including the British Isles), the term "vine" usually applies exclusively to grapevines (*Vitis*), while the term "climber" is used for all climbing plants. (Lesley, 1993).

Vines widely differ in size, form and evolutionary origin. Darwin classified climbing groups based on their climbing method. He classified five classes of vines –twining plants, leaf climbers, tendril bearers, root climbers and hook climbers.

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Vines are unique in that they have multiple evolutionary origins and a wide range of phenotypic plasticity. They usually reside in tropical locations and have the unique ability to climb. Vines are able to grow in both deep shade and full sun due to their wide range of phenotypic plasticity. This climbing action prevents shading by neighbors and allows the vine to grow out of reach of herbivores. The environment where a vine can grow successfully is determined by the climbing mechanism of a vine and how far it can spread across supports. There are many theories supporting the idea that photosynthetic responses are closely related to climbing mechanisms.

Temperate twining vines, which twist tightly around supports, are typically poorly adapted for climbing beneath closed canopies due to their smaller support diameter and shade intolerance. In contrast, tendril vines usually grow on the forest floor and onto trees until they reach the surface of the canopy, suggesting that they have greater physiological plasticity. It has also been suggested that twining vines revolving growth is mediated by changes in turgor pressure mediated by volume changes in the epidermal cells of the bending zone.

Climbing vines possess many unique characteristics in response to changes in their environments. Climbing vines can induce chemical defenses and modify their biomass allocation in response to herbivores. In particular, the twisting vine *C. arvensis* increases its twining in response to herbivore-associated leaf damage, which may lead to reduced future herbivory. Additionally, the tendrils of perennial vine *Cayratia japonica* are more like to coil around nearby non-self plants than nearby self-plants in natural and experimental settings. This demonstrates the vine's ability to self-discriminate, which has only been previously documented in roots (Ernesto, 2005).

Over the last few decades several attempts have been made on the floristic studies in Bangladesh, particularly in the forest and protected areas (Khan and Afza, 1968; Khan and Banu, 1972; Rahman and Hassan, 1995; Uddin *et al.*, 2013; Khan and Huq, 2001; Uddin and Hassan, 2010; Tutul *et al.*, 2010; Arefin *et al.*, 2011; Uddin and Hassan, 2012). Studies on angiosperm flora in different Zilla and Upazilas of Bangladesh are limited (Islam *et al.*, 2009; Rahman *et al.*, 2013; Moniruzzaman *et al.*, 2012; Rahman and Alam, 2013), however, there has been no recorded angiosperm climber species in Rajshahi region, Bangladesh.

Materials and Methods:-

Study Area:

Rajshahi region, located in between 24°03' and 24°15' north latitudes and in between 89°00' and 89°11' east longitudes. It is bounded by Ishwardi and Natore sadar on the south, Noldanga and Atrai upazilas on the east, Naogaon sadar and Manda upazilas on the north, Nachole and Chapai Nawabganj upazilas on the west. Soil texture was determined by hydrometer method and soil P^H was measured in a 1:2.5. Soil water suspension measured by glass electrode P^H meter. This is the best soil for the growth of various plants. The study area has tropical monsoon climate. It is characterized hot humid summers and generally mild winters and rainfall. The summer season commences early in the March with the cessation of the Northerly wind. The winter season (November-January) which is cool and little rainfall; summer season (June-October) which is warm and no rainfall. The maximum monthly temperature can reach up to 37.78°C during April and minimum monthly temperature 7.78°C during January (BPC, 2001).

Survey method:

The work is based on fresh materials collected during one hundred and twenty one visits to Rajshahi region, Bangladesh from January 2015 to November 2019 to cover the seasonal variations. A total of 88 species belonging to 55 genera under 25 families were recorded. The visits covered all types of habitats, particular river bank, slope, village grove, fruit gardens and roadsides of the study area. Each trip lasted for eight days. Plant parts with either flower or fruits collected using traditional herbarium techniques to make voucher specimens for documentation and voucher specimens have been preserved at Herbarium of Rajshahi University (HRU).

Plant identification:

Collected specimens have been critically examined, studied and identified. Identifications have been confirmed by consulting standard literatures (Hooker, 1877; Prain, 1903) and taxonomists of Rajshahi University (HRU). Nomenclature has been updated following recent literature (Ahmed *et al.*, 2008-2009; Huq, 1986, and Pasha and Uddin, 2013).

Results and Discussion:-

Diversity angiosperm climber species in Rajshahi region, Bangladesh was carried out from January 2015 to November 2019. An extensive floristic survey an angiosperm climbers and collection have been made throughout the study area. A total of 88 species belonging to 55 genera under 25 families were recorded. Distribution of angiosperm plant species in the families shows variation. The family Cucurbitaceae is represented by 27 species. Fabaceae is represented by 12 species. Convolvulaceae is represented by 9 species (Fig.2). A single species is represented by 13 families while 2 to 4 species is represented by 9 families (Table 1). For each species scientific name, local name, family, flowering and fruiting time and are provided with citation of specimens. Out of 88 species, 53.40% species was common and 46.59% was rare species in the study area. (Fig.1).

Out of 88 species, *Abrus precatorius* L., *Alysicarpus bupleuriformis* (L.) DC., *Antigonon leptopus* Hook.et Arn., *Aristolochia indica* L., *Asparagus racemosus* Willd., *Bryonopsis laciniosa* (L.) Naud., *Campsis radicans* (L.) Seem., *Cardiospermum halicacabum* L., *Cayratia trifolia* (L.) Domin., *Cissus quadrangularis* L., *Cucumis callosus* (Rottb.) Cogn., *Diplocyclos palmatus* (L.) Jeff., *Epipremnum pinnatum* (L.) Engl., *Gymnopetalum cochinchinense* (Lour.) Kurz., *Houttuynia cordata* L., *Ipomoea nil* (L.) Roth., *Ipomoea pes-tigridis* L., *Momordica dioica* Roxb. ex Willd., *Mucuna pruriens* (Willd.) DC., *Mukia maderaspatana* (L.) Roem., *Paederia foetida* L., *Passiflora foetida* L., *Piper nigrum* L., *Smilax zeylanica* L., *Stephania japonica* (Thunb.) Miers., *Thladiantha cordifolia* (Bl.) Cogn., *Trichosanthes cucumerina* L. was rare species and *Bignonia ignea* Vell., *Canavalia virosa* (Roxb.) Wight. & Arn., *Cissus auriculata* Roxb., *Clematis virginiana* L., *Clitoria mariana* L., *Cydista aequinocitialis* Gentry., *Dichondra repens* J.R.Frost.& G.Frost., *Odontadenia macrantha* (Roen.&Schult.)Markg., *Passiflora coccinea* L., *Petrea volubilis* L., *Solena amplexicaulis* (Lam.) Gandhi., *Thunbergia mysorensis* (Wight.)T. Anderson ex Bedd., *Tinospora crispa* (L.) Hook.f. & Thoms., *Vernonia elaeagnifolia* DC., *Vigna trilobata* (L.)Verde, *Zehneria japonica* (Thunb.) H.Y. Liu. and *Zehneria scabra* (L.f.) Sond. was new reported in the study area.

The collected information is comparable with the result of other studies in Bangladesh and abroad. A total of 28 climber species recorded in Ishwardi Pouroushova of Pabna district, Bangladesh (Roy and Rahman., 2018). A total of 52 climber species in Rajshahi district (Rahman, 2013). A total of 31 climber species recorded in Bangladesh Police Academy (Rahman *et al.*, 2014). A total of 55 climber species documented in Dhaka University Campus (Uddin and Hassan, 2016). A total of 19 climber species recorded in Barisal district, Bangladesh (Hossain and Rahman, 2018). A total of 37 climber species in Satchari National Park, Habiganj (Arefin *et al.*, 2011). A total of 78 climber species in Baraiyadhala National Park, Chittagong (Harun-Ur-Rashid, 2018). A total of 10 climber species in Rajkandi Reserve Forest of Moulvibazar (Haque *et al.*, 2018). A total of 64 climber species in Sundarban Mangrove forest of Bangladesh (Rahman *et al.*, 2015). A total of 49 climber species in a Nigerian secondary forest (Muoghalu and Okeesan, 2005). A total of 13 climber species in a southeast Brazilian tropical forest1 (Sanches and Valio, 2002). A total of 143 liana species in tropical forests of south Eastern Ghats, India (Muthumperumal and Parthasarathy, 2010). A total of 8 climbers in the urban forests of Addis Ababa, Ethiopia (Woldegerima *et al.*, 2017). So far the information available, no published data recorded on the angiosperm climber species in the Rajshahi region of Bangladesh. The present study will be also help in identifying the major angiosperm climbers for future investigation.

Table 1:-Diversity of angiosperm climber species in Rajshahi region, Bangladesh

| Sl. No. | Scientific name | Local name | Family name | Status of occurrence | Flowering and fruiting time | Representative specimens |
|---------|--|-------------|------------------|----------------------|-----------------------------|--------------------------|
| 1 | <i>Abrus precatorius</i> L. | Kunch | Fabaceae | Rare | Jul.-Sep. | RRHRU-289 |
| 2 | <i>Alysicarpus bupleuriformis</i> (L.) DC. | Pan-nata | Fabaceae | Rare | Mar.-Aug. | RRHRU-43 |
| 3 | <i>Antigonon leptopus</i> Hook.et Arn. | Ananta Lata | Polygonaceae | Rare | Feb.-Aug. | RRHRU-12 |
| 4 | <i>Aristolochia indica</i> L. | Isharmul | Aristolochiaceae | Rare | Aug.-Nov. | RRHRU-56 |
| 5 | <i>Asparagus racemosus</i> Willd. | Satamuli | Liliaceae | Rare | Nov.-Mar. | RRHRU-98 |
| 6 | <i>Basella rubra</i> L. | Poi-shak | Basellaceae | Common | Nov.-Mar. | RRHRU-78 |
| 7 | <i>Benincasa hispida</i> | Chalkumra | Cucurbitaceae | Common | May.-Nov. | RRHRU-52 |

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|----|--|---------------|----------------|--------|-----------|-----------|
| | (Thunb.) Cogn. | | | | | |
| 8 | <i>Bignonia ignea</i> Vell. | Bignonia | Bignoniaceae | Rare | Jan.-Dec. | RRHRU-23 |
| 9 | <i>Bryonopsis laciniosa</i> (L.) Naud. | Mala | Cucurbitaceae | Rare | Apr.-Dec. | RRHRU-77 |
| 10 | <i>Campsis radicans</i> (L.) Seem. | Turilata | Bignoniaceae | Rare | Jun.-Aug. | RRHRU-179 |
| 11 | <i>Canavalia virosa</i> (Roxb.) Wight. & Arn. | Kath Shim | Fabaceae | Rare | Nov.-Mar. | RRHRU-20 |
| 12 | <i>Cardiospermum halicacabum</i> L. | Lataphutki | Sapindaceae | Rare | May-Nov. | RRHRU-29 |
| 13 | <i>Cayratia trifolia</i> (L.) Domin. | Amal Lata | Vitaceae | Rare | Jan.-Dec. | RRHRU-109 |
| 14 | <i>Cissus auriculata</i> Roxb. | Jumgli angur | Vitaceae | Rare | May.-Sep | RRHRU-59 |
| 15 | <i>Cissus quadrangularis</i> L. | Harjora Lata | Vitaceae | Rare | Apr.-Oct. | RRHRU-73 |
| 16 | <i>Cissus verticillata</i> L. | Bonangur | Vitaceae | Rare | Jan.-Dec. | RRHRU-145 |
| 17 | <i>Citrullus lanatus</i> (Thunb.) Mat. & Nak. | Tormuj | Cucurbitaceae | Common | Mar.-Sep. | RRHRU-90 |
| 18 | <i>Clematis virginiana</i> L. | Bon-jaluki | Ranunculaceae | Rare | Dec.-Jun. | RRHRU-58 |
| 19 | <i>Clitoria mariana</i> L. | Projapoti Sim | Fabaceae | Rare | May.-Dec. | RRHRU-45 |
| 20 | <i>Clitoria ternatea</i> L. | Aparajita | Fabaceae | Common | Jun.-Mar. | RRHRU-90 |
| 21 | <i>Coccinia grandis</i> (L.) Voigt. | Telakucha | Cucurbitaceae | Common | Mar.-Dec | RRHRU-112 |
| 22 | <i>Cucumis callosus</i> (Rottb.) Cogn. | Kallu bangi | Cucurbitaceae | Rare | May.-Oct. | RRHRU-178 |
| 23 | <i>Cucumis melo</i> L. | Bangi, Phuti | Cucurbitaceae | Common | Mar.-Oct. | RRHRU-126 |
| 24 | <i>Cucumis sativus</i> L. | Khira, Shasha | Cucurbitaceae | Common | Apr.-Oct. | RRHRU-141 |
| 25 | <i>Cucurbita maxima</i> Duch. ex Lamk. | Mistikumra | Cucurbitaceae | Common | Mar.-Oct. | RRHRU-85 |
| 26 | <i>Cucurbita pepo</i> L. | Sadakadu | Cucurbitaceae | Common | Jun.-Nov. | RRHRU-196 |
| 27 | <i>Cydista aequinocialis</i> Gentry. | Rashun lata | Bignoniaceae | Common | Sep.-Ded. | RRHRU-150 |
| 28 | <i>Dichondra repens</i> J.R.Frost.& G.Frost. | Coinplant | Convolvulaceae | Common | May.-Sep. | RRHRU-215 |
| 29 | <i>Dioscorea alata</i> L. | Chupri Alu | Dioscoreaceae | Common | Oct- Dec. | RRHRU-149 |
| 30 | <i>Diplocyclos palmatus</i> (L.) Jeff. | Mala | Cucurbitaceae | Rare | Sep.-Jan. | RRHRU-183 |
| 31 | <i>Epipremnum pinnatum</i> (L.) Engl. | Premnum | Araceae | Rare | Apr.-May | RRHRU-191 |
| 32 | <i>Ficus pumila</i> L. | Latabot | Moraceae | Common | Oct.-Mar. | RRHRU-2 |
| 33 | <i>Gymnopetalum cochinchinense</i> (Lour.) Kurz. | Bati Jinga | Cucurbitaceae | Rare | Jul.-Dec. | RRHRU-13 |
| 34 | <i>Houttuynia cordata</i> L. | Ashtey gach | Saururaceae | Rare | May-Jun. | RRHRU-87 |
| 35 | <i>Ichnocarpus frutescens</i> (L.) R.Br. | Loilata | Apocynaceae | Common | Apr.-Dec. | RRHRU-53 |
| 36 | <i>Ipomoea alba</i> L. | Dudhkalmi | Convolvulaceae | Common | Jan.-Dec. | RRHRU-4 |
| 37 | <i>Ipomoea aquatica</i> Forssk. | Kalmi | Convolvulaceae | Common | Jan.-Dec. | RRHRU-7 |
| 38 | <i>Ipomoea batatas</i> (L.) Lamk. | Mistialu | Convolvulaceae | Common | Dec.-May | RRHRU-11 |
| 39 | <i>Ipomoea cairica</i> (L.) Sweet. | Rail Lata | Convolvulaceae | Common | Jan.-Dec. | RRHRU-10 |

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|----|---|----------------------|----------------|--------|-----------|-----------|
| 40 | <i>Ipomoea nil</i> (L.) Roth. | Nil Kalmi | Convolvulaceae | Rare | Oct.-Dec. | RRHRU-16 |
| 41 | <i>Ipomoea pes-tigridis</i> L. | Langui Lata | Convolvulaceae | Rare | May-Aug. | RRHRU-24 |
| 42 | <i>Ipomoea purpurea</i> (L.) Roth. | Beguni ghanta | Convolvulaceae | Common | Jan.-Dec. | RRHRU-19 |
| 43 | <i>Ipomoea quamoclit</i> L. | Kunjallata | Convolvulaceae | Common | Jul.-Sep. | RRHRU-14 |
| 44 | <i>Lablab purpureus</i> (L.) Sweet. | Sheem | Fabaceae | Common | Nov.-Mar. | RRHRU-9 |
| 45 | <i>Lagenaria siceraria</i> (Molina) Standl. | Lau | Cucurbitaceae | Common | Feb.-May | RRHRU-99 |
| 46 | <i>Luffa acutangula</i> (L.) Roxb. | Jhinga | Cucurbitaceae | Common | Apr.-Oct. | RRHRU-77 |
| 47 | <i>Luffa cylindrica</i> (L.) Roem. | Dhundol | Cucurbitaceae | Common | Jun.-Dec. | RRHRU-300 |
| 48 | <i>Merremia hederacea</i> (Burm.f.) Hallier.f | Sapussunda | Convolvulaceae | Common | Jan.-Dec. | RRHRU-255 |
| 49 | <i>Mikania cordata</i> (Burm.f.) Rob. | Assamlata | Asteraceae | Common | Oct.-Feb. | RRHRU-61 |
| 50 | <i>Momordica charantia</i> L. var. <i>charantia</i> C.B. Clarke in Hook. f. | Karala | Cucurbitaceae | Common | May-Oct. | RRHRU-160 |
| 51 | <i>Momordica charantia</i> L. var. <i>muricata</i> (Willd.) Chak. | Uchchhey | Cucurbitaceae | Common | Jul.-Oct. | RRHRU-147 |
| 52 | <i>Momordica cochinchinensis</i> (Lour.) Spreng. | Kakrol | Cucurbitaceae | Common | Jul.-Nov. | RRHRU-102 |
| 53 | <i>Momordica dioica</i> Roxb. ex Willd. | GheeKorolla | Cucurbitaceae | Rare | May-Oct. | RRHRU-109 |
| 54 | <i>Mucuna pruriens</i> (Willd.) DC. | Al-Kushi, Soash Guri | Fabaceae | Rare | Nov.-Mar. | RRHRU-118 |
| 55 | <i>Mukia maderaspatana</i> (L.) Roem. | Agmuki | Cucurbitaceae | Rare | Jul.-Dec. | RRHRU-173 |
| 56 | <i>Odontadenia macrantha</i> (Roen.&Schult.) Markg. | Kanakshudha | Apocynaceae | Rare | Aug.-Mar. | RRHRU-38 |
| 57 | <i>Pachyrhizus erosus</i> (L.) Urban. | Keshur | Fabaceae | Common | Oct.-Jan. | RRHRU-53 |
| 58 | <i>Paederia foetida</i> L. | Gondhavaduli | Rubiaceae | Rare | Jun.-Jan | RRHRU-45 |
| 59 | <i>Passiflora coccinea</i> L. | Lal jhumkolata | Passifloraceae | Rare | Apr.-Jun. | RRHRU-195 |
| 60 | <i>Passiflora foetida</i> L. | Jhumka Lata | Passifloraceae | Rare | May-Dec. | RRHRU-70 |
| 61 | <i>Petrea volubilis</i> L. | Nilmanik | Verbenaceae | Rare | Mar.-Oct. | RRHRU-152 |
| 62 | <i>Piper betle</i> L. | Pan | Piperaceae | Common | Dec.-May | RRHRU-133 |
| 63 | <i>Piper nigrum</i> L. | Golmorich | Piperaceae | Rare | Jan.-Dec. | RRHRU-33 |
| 64 | <i>Piper rhytidocarpum</i> Hook.f. | Ban-pipul | Piperaceae | Common | Dec.-Sep. | RRHRU-129 |
| 65 | <i>Quaisqualis indica</i> L. | Madhobilata | Combretaceae | Common | Jan.-May | RRHRU-239 |
| 66 | <i>Rhaphidophora aurea</i> (Linden & Andre') Bird. in Bail. | Money plant | Araceae | Common | Aug.-Sep. | RRHRU-105 |
| 67 | <i>Smilax zeylanica</i> L. | Kumari lata | Smilacaceae | Rare | Jan.-Dec. | RRHRU-288 |
| 68 | <i>Solena amplexicaulis</i> (Lam.) Gandhi. | Kudri | Cucurbitaceae | Rare | Jul.Dec. | RRHRU-137 |
| 69 | <i>Stephania japonica</i> | Akanadi | Menispermaceae | Rare | Jan.-Dec. | RRHRU-35 |

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|----|--|--------------------|----------------|--------|-----------|-----------|
| | (Thunb.) Miers. | | | | | |
| 70 | <i>Thladiantha cordifolia</i> (Bl.) Cogn. | Perilata | Cucurbitaceae | Rare | May-Nov. | RRHRU-186 |
| 71 | <i>Thunbergia erecta</i> (Benth.) T. Anderson | Nilghonto | Acanthaceae | Common | Jan.-Dec. | RRHRU-65 |
| 72 | <i>Thunbergia grandiflora</i> (Roxb. ex Rottler) Roxb. | Nillata | Acanthaceae | Common | Nov.-Jan. | RRHRU-184 |
| 73 | <i>Thunbergia mysorensis</i> (Wight.) T. Anderson ex Bedd. | Bashorlata | Acanthaceae | Rare | Jan.-Dec. | RRHRU-115 |
| 74 | <i>Tinospora cordifolia</i> (Willd.) Hook.f. & Thoms. | Ghora- gulanča | Menispermaceae | Common | Jan.-Oct. | RRHRU-127 |
| 75 | <i>Tinospora crispa</i> (L.) Hook.f. & Thoms. | Gulanča | Menispermaceae | Rare | Jan.-Jun. | RRHRU-198 |
| 76 | <i>Trichisanthes anguina</i> L. | Chichinga | Cucurbitaceae | Common | Apr.-Aug. | RRHRU-111 |
| 77 | <i>Trichosanthes</i> <i>cucumerina</i> L. | Ban chichinga | Cucurbitaceae | Rare | Jun.-Oct. | RRHRU-203 |
| 78 | <i>Trichosanthes dioica</i> Roxb. | Patol | Cucurbitaceae | Common | Apr.-Sep. | RRHRU-211 |
| 79 | <i>Trichosanthes</i> <i>tricuspidata</i> Lour. | Makal | Cucurbitaceae | Common | Jul.-Dec. | RRHRU-115 |
| 80 | <i>Vernonia elaeagnifolia</i> DC. | Pardabel | Asteraceae | Common | Jan.-Dec. | RRHRU-121 |
| 81 | <i>Vigna trilobata</i> (L.) Verde | Cowpea | Fabaceae | Common | May.-Dec | RRHRU-212 |
| 82 | <i>Vigna mungo</i> (L.) Hepper. | Mashkalai | Fabaceae | Common | Nov.-Jan. | RRHRU-218 |
| 83 | <i>Vigna radiata</i> (L.) Wilczek | Moog, Suna moog | Fabaceae | Common | Feb.-Apr. | RRHRU-144 |
| 84 | <i>Vigna unguiculata</i> (L.) Walp. | Borboti | Fabaceae | Common | Jan.-Dec. | RRHRU-171 |
| 85 | <i>Vitis coignetiae</i> Pulliat ex Planch. | Crimson glory | Vitaceae | Common | Jan.-Dec. | RRHRU-371 |
| 86 | <i>Vitis vinifera</i> L. | Angur | Vitaceae | Common | Jan.-Dec. | RRHRU-471 |
| 85 | <i>Zehneria japonica</i> (Thunb.) H.Y. Liu. | Japani zeneri | Cucurbitaceae | Rare | May-Nov. | RRHRU-181 |
| 86 | <i>Zehneria scabra</i> (L.f.) Sond. | Khoskho sazeri | Cucurbitaceae | Rare | May-Nov. | RRHRU-91 |

Jan.=January, Feb.=February, Mar.=March, Apr.=April, May=May, Jun.=June, Jul.=July, Aug.=August, Sep.=September, Oct.=October, Nov.=November, Dec.= December

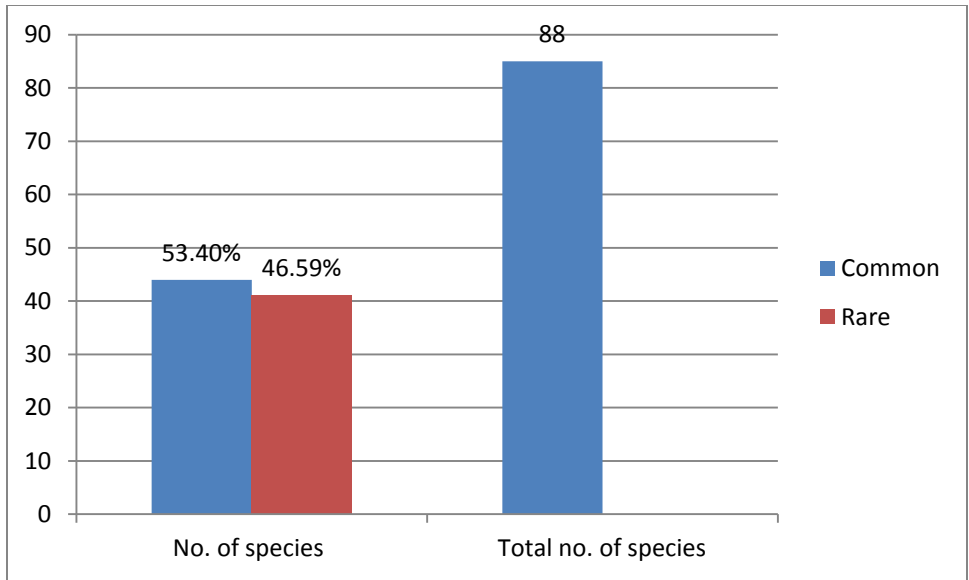


Fig 1:-Recorded status of occurrence in the study area

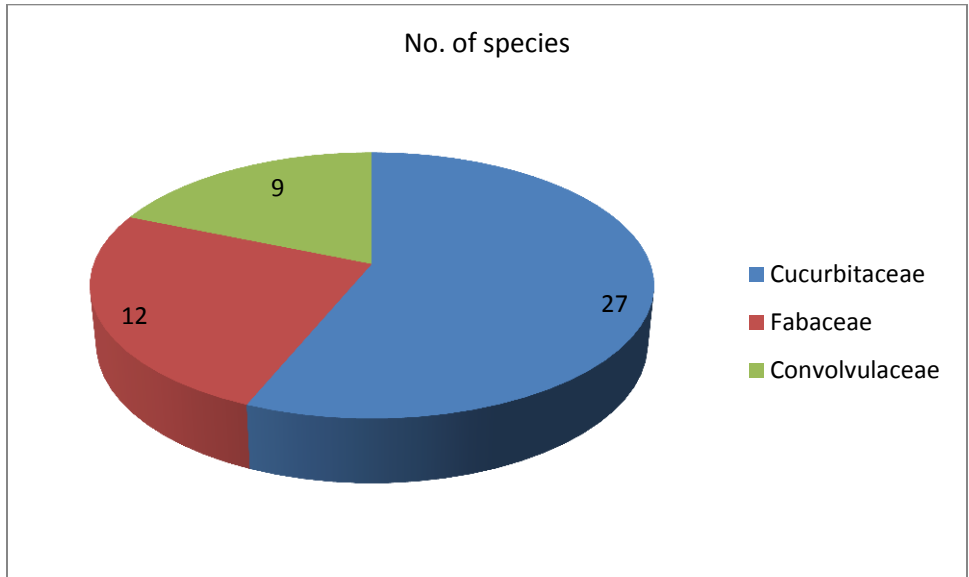


Fig 2:-Recorded dominant families in the study area

Photographs



Abrus precatorius



Alysicarus bupleuriformis



Antigonon leptopus



Aristolochia indica



Asparagus racemosus



Basella rubra



Benincasa hispida



Bignonia ignea



Bryonopsis laciniosa



Campsis radicans



Canavalia virosa



Cardiospermum halicacabum



Cayratia trifolia



Cissus auriculata



Cissus quadrangularis



Cucumis callosus



Clematis virginiana



Clitoria mariana



Clitoria ternatea



Coccinia grandis



Citrullus lanatus



Cucumis melo



Cucumis sativus



Cucurbita maxima



Cucurbita pepo.



Cydista aequinocitialis



Dichondra repens



Dioscorea alata



Diplocyclos palmatus



Epipremnum pinnatum



Gymnopetalum cochinchinense



Houttuynia cordata



Ichnocarpus frutescens



Ipomoea alba



Ipomoea aquatica



Ipomoea batatas



Ipomoea purpurea



Ipomoea quamoclit



Lablab purpureus



Lagenaria siceraria



Luffa acutangula



Luffa cylindrica



Merremia hederacea



Mikania cordata



Momordica charantia L. var. *charantia*



Momordica charantia L. var. *muricata*



Momordica cochinchinensis



Momordica dioica



Mucuna pruriens



Mukia maderaspatana



Odontadenia macrantha



Pachyrrhizus erosus



Paederia foetida



Passiflora coccinea



Passiflora foetida



Petrea volubilis



Piper betle



Piper nigrum



Piper rhytidocarpum



Quaisqualis indica



Raphidophora aurea



Smilax zeylanica



Solena amplexicaulis



Stephania japonica



Thladiantha cordifolia



Thunbergia erecta



Thunbergia grandiflora



Thunbergia mysorensis



Tinospora cordifolia



Tinospora crispa



Trichisanthes anguina



Trichosanthes cucumerina



Trichosanthes dioica



Trichosanthes tricuspidata



Vernonia elaeagnifolia



Vigna trilobata



Vigna mungo



Vigna radiata



Vigna unguiculata



Zehneria japonica



Zehneria scabra



Cissus verticillata



Ficus pumila



Ipomoea cairica

*Ipomoea nil**Ipomoea pesti-gridis**Vitis coignetiae**Vitis vinifera*

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