CHAPTER- 2
LITERATURE REVIEW
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- Ecology is the methodical learn of the connections that decide the giving out and great quantity of organisms (Krebs 1972).

- The French zoologist Hilaire (1859) has planned the word ethology for “the learn of the relations of the organisms by means of relations and civilization in the collective and in the community”.

- Reiter (1868) introduce the word Oekologie which is derivative beginning two greek words “Oikos” denotation “home” and “logos” denotation “the learning of”.

- Haeckel (1869) definite Oelologie as “the learning of mutual relationships between livelihood organisms and their atmosphere.

- Warming (1905) utilize this knowledge for the learning of plants.

- Odum (1969) chosen to describe “ecology as the learning of the organization and purpose of ecosystems”.

- Petrus de Crescentius (1305) is belived to have primary deliberate compition on amongst forest plants followed by Graunt (1662) on human populace by measure natality, humanity, and sex ratio and age composition.

- Late M. H. Murthy, Bhatt and Inamdar (1971), Fther H. Santapau (1962), Oza (1991) and Mitaliya (1998) were studied the regular floristic labor from Bhavnagar distict.
• Agharkar (1924), studied phytosociological approach to the study of plant communities was for the first time mainly for the grasslands. Bharucha in association with his connections at Bombay contribute mainly to the phytosociology of grassland.

• Champion (1929), Troup (1925) and Bor (1948) etc. occupied themselves in the learning of ecology of forest vegetations.

• Auticological study on a numeral of forest trees were complete by Champion and Pant (1931), Jagat singh (1925), Phadnis (1925) and Champion and Griffith (1947).

• Wide-ranging auticological study in India were really intiated by Misra, R., who after his come back from Leeds contribute to autecology of herbaceous plants of dissimilar habitat circumstances such as aquatics (1944), ravines and eroded river banks (1944) and lowlying areas (1948).

• Misra and S. Rao (1948) intentional the autecology of *Lindenbergia polyantha*, enlightening a number of significant particulars about the allocation of this species.

• The widespread investigation into phytosociology of grasslands and mangroves by Bharucha (1941), deserts by Sarup and Co-workers, and forests by Puri, G.S. (1960) made rotating end in the the past of expansion of ecology in the country.

• Autecological and Synecological study of tree-plant community have been complete by Rao (1967), Puri (1956), Sharma (1955), Misra and Joshi (1952), Bhatia (1956) and Arora (1964).
• Productivity studies of forest have been made by Ramam (1970), Singh (1971), Misra (1969), and Bandhu (1971).

• Autecological and phytosociological study on more than a small number of herbaceous plants of grasslands and wasteland has been made by Tripathi (1965), Kaul (1959), Choudhary (1967) and Singh (1967).

• Auticology of some medicinal plants have been made by Biswas (1967), Ratra (1970) and Pathak (1967).

• Elemental to ecosystem performance known as Biodiversity. Abiotic factor, such as geophysical condition and climate, help to conclude the limitations of ecosystems (Colwell and Lees 2000; Gaston 2000).

• Pandit and Kotiwar (2002) studied the ecological study and floristic study of Bhavnagar and surrounding. They studied 431 Sp. from Gir forets ecosystem Gujarat.

• Ethnobotanical, Floristic and phytosociological study of Vapi and Umargaon area in South Gujarat, Vapi, done by Contractor, G.J. (1986).

• Singh, (2002) biodiversity is the study of totality of species, ecosystem and genes in an area. It is compulsory for human endurance and economic well being and for the ecosystem purpose and steadiness.

• Ecosystem function and fundamental is known as Biodiversity. Weather and geophysical condition help to decide the limitations of ecosystem (Colwell and Less, 2000, Gaston, 2000).

• Tropical moist forests split procedure and main vegetation types universal, but species composition varies obviously among the world’s eight biogeographical


- High species diversity generally found in tropical forest. Evaluate species richness, variety, and comparison of a variety of forest ecosystems research has been done by Faridah Hanum et al., 2001a and 2001b, and Rusea et al., 2001. Study species richness, species diversity, species similarity and species accretion these several numerical approach was adopted by Krebbs (1999). Myrtaceae family has very little representation in Africa but Southeast Asia, Australia and tropical to southern America Myrtaceae family has centers of diversity. So, Myrtaceae family is very common in the coastal beach area and has relative highest abundance.

- CHYTRÝ et al. 2005, HOOFTMAN et al.2006 studied phytosociological they represent an important source of data for ecology of invasions.

- Phytosociology is a co-subject of plant ecology that describes the occurrence of plant species in communities (Ewald, 2003).

- Suraj and Menon (2005) studied phytosociological analysis of forested vegetation in Ponmudi hill, Kerala. They approved plant life analysis to study the diversity index, density, IVI, basal area, dominance and species along an altitudinal gradation in Ponmudi hill, Kerala.
• Negi et al., (2005) studied phytosociological analysis of a conventional reserve forest, Thal Ke Dhar, Pithoragarh, Central Himalaya. They carried out sacred forest to recognize the arrangement and renewal possible and conservation status.

• Kharkwal et al., (2005) studied phytodiversity and enlargement form in relation to altitudinal incline in the central Himalayan (Kumaun) region of India.

• Kumar et al., (2006) studied phytosociological feature and variety pattern of tree species in Garo hills, western Meghalaya.


• Bijalwan et al., (2009) studied phytosociological analysis of wooded perennials the length of with aspects in Balandi watershed of mixed dry tropical forest in Chhattisgarh plain. They also studied a significant role in the organization and domination in the phytodiversity.

• Species diversity, floristic composition and structural analysis studies are essential for providing information on understanding forest management, help in understanding forest ecology and ecosystem function and species richness of the forests (Giriraj et al., 2008; Pappoe et al., 2010).

• Structure of afforest and knowledge of floristic composition useful in identifying ecology and economically important plants and diversities, protecting important plant and species (Addo-Fordjour et al., 2009).

• Kachroo et al. (1977) studied 611 species of flowering plants floristic surveys in Ladakh. Dickore & Miehe (2002) studied recent estimates that the number
may be higher; recently the Ladakh richness of flowering plants may be 500-1000 species per 10,000 km\(^2\). Klimes (2003) studied 404 species of flowering plants in about 10,207 km\(^2\).

- Chong 1999, Lay et al. 1999 studied conference on Biological assortment of Hong Kong. Rising number of native species of Hong Kong.

- Protection of biological diversity in forest landscapes is thoughtful and organization the disturbances regime of a landscape under pastnatural and seminatural circumstances (Spies & Turner 1999).

- Biodiversity is the species, ecosystem in a region and the totality of gene. During twenty to thirty years biologist conserve warm that 25 percent of all species develop into destroyed. the unceasing form of turbulence are found in which people take away only a small portion of forest biomass in the form of grazing, lopping, surface burning and litter taking away at a given time in the Himalayan region (Singh 1998).

- Nitrogen available from plant is mainly important site factor dissimilar vegetation in forests not prejudiced by ground water, within a given climatic region. This is the most cause why impressive nitrogen inputs have been leading to rapid and large-area vegetation changes. Last century, anthropogenic pollution originating from industry, agriculture, and traffic has included rapid changes in forest vegetation. The input of atmospheric nitrogen compound has been identified as the main driving force of the observed vegetation change in various studies (Hofmann, 1972; Ellenberg, 1985; Hofmann et al., 1990; Bücking, 1993; Bobbink et al., 1998; Anders et al., 2002; Jenssen and Hofmann, 2005).
Formal framework for organizing and naming of the diversity in plant communities known as phytosociology, (Braun-Blanquet j, 1928). Various parameters like Quantitative characters, i.e. Abundance (A), Density (D), Frequency (F), Relative Dominance (RDo), Relative Density (RD), Relative Frequency (RF), Importance Value Index (IVI), and Coefficient of Variation (CV) involved in phytosociology. Biodiversity means genetic difference within species to bioms on the earth and encompass a broad spectrum of biotic scales, (Wilson and Willes, 1992; Gaston, 1996; Purvis and Hector, 2000; Mooney 2002).

Xerophytes phytosociology studied by E.S (2003) wood land at the bank of the Sao Francisco River Brazil, recorded 39 genera. A great number of studies have been approved out all over the world on various aspects of biodiversity (Magurran, 2004). In India the forest cover 20.64%, Anon SFR, (2003). In India classified of the forest 16 types, (Champion and Seth, 1968).

Ibanez et al. (2007) studied the germination and seedlings of temperate plants in the southeest USA were affected by minor changes in climate which affect on adult tree population.

Zimmerman et al. (2009) stidied highlighted the increased sensitivity of species during regeneration to climatic extremes.

Biological variety is the unpredictability among living organisms from all source and the ecological complex of which they are part and includes diversity within species or between species and of ecosystems BDA, (2002).

Pratik addo et al.(2008) done the vegetative diversity of climbers. 951 climbing plant in semi rain forest, Gana investigated by Chellam mutuum perumal et al ;( 2009). Diversity of weed study reported 65 weeds species it was exposed
that ordinary people use 53 sp. for medicinal purpose,(kunja et al.,2012),(prayag murty et al;2011).

- Ekta singh et al ;( 2010) studied traditional knowdedge of plant and some work carried about phytosociology and floristic. M.g. science in Ahmedabad for tree wealth studied by N.R. mulia (2010).


- Taylor et al., (2001) studied the protection of African medicinal plant is critical for local health. 95% of African forest drug needs comes from medicinal plants, 5000 plant species in African forest are used medicinally.


- Vegetation studies known as the relation between plant communities and the soil properties or the climate in different region. Phytosociological studies are compulsory for protecting the plant communities and biodiversity as well as understanding the nature. Most countries have completed these basic studies (Hamzaoğlu, 2005) and prepared vegetation maps (Tel et al., 2010).

- In south Gujarat dominant species are *Boswellia ameero*, *Anogeissus latifolia*, *Acacia catechu*, *Tectona grandis*, *Sterculia urens*, *Cochlospermum religiosum* and occasionally *Anogeissus pendula*. These plants cover 4718.540 km² forest areas of South Gujarat (G.D.Bhatt, S.P.S. Kushwaha, S.Nandy, Kiran Bargali, 2013).

- Mangrove scrub forest dominant species found in South Gujarat forest type are *Avicennia officinalis*, *Avicennia marina*, *Avicennia alba*, *Rhizophora mucronata* and *Acanthus illicifolius* etc (G.D.Bhatt, S.P.S. Kushwaha, S.Nandy, Kiran Bargali, 2013).

- Riverain forest dominant species found in South Gujarat forest type are *Syzygium heyeananum*, *Pongamia pinnata*, *Terminalia arjuna*, *Tamarix dioica*,

- Grassland dominant species found in South Gujarat are according to Dabadghao, the dominant grass cover in the dry deciduous zone is *Sehima nervosum-Dichanthium annulatum* (Forssk.) Stapf (31). It covers 19.100 km2 (0.297 %) area of south Gujarat. In south Gujarat other grass are also noticed during the field work these grasses are: *Apluda mutica* L., *Aristida adscensionis* L., *A. funiculate* Trin & Rupr., and *Arthraxon lanceolatus* (Roxb.) Hochst. *Dichanthium annulatum* (Forssk.)

- Monz (2002) studied two types of vegetation regeneration in experimentally trampled tundra in north Alaska. Tolvanen et al. 2001; Forbes et al. followed dissimilar from the vegetation types at present under examination in the Nordic mountain birch forest.

- Bamboos used in Paper and pulp industries. It has been realize long realize long back that in Vitro promulgation is necessary to meet the ever-increasing demand of planting stock of bamboos (Rao I V R & Rao I U, 1988).

- Dominance of beautiful flowered Eremurus himalaica (Praey) showed mouth of the valley has a presence of Datisca cannabina along the steep river valley (Kapoor & Jishtu 2008).

- Tolvanen et al (2001) studied population level, plant groups obviously differ in their comeback to templing in the Nordic mountain birch zone.
• Welling and Laine (2002) studied density of seeds and seedlings to be higher in meadow than in health vegetation at Kilpijarvi Finland.

• Aradottir and Arnalds (2001); Mangnusson and Magnusson (2001) studied in renewal of Iceland mountain birch forest by seed.

• Gnieser (2000) studied many environmental and floristic similarities in subarctic arctic region similar to the mountain birch forest.

• Forest injure by major insect species studied by aerial survey of forest. Demonstrate the great temporal difference in annual areas pretentious over the past few decades, both in Canada (Natural Resources Canada, 2009b) and the United States (USDA Forest Service, 2000, 2002, 2003a,b, 2004, 2005, 2006, 2007, 2009a; Natural Resources Canada, 2009b).

• Campbell et al., (2000) studied deforestation is most important activities that have lead to marvelous loss of significant plant resources in both rising and residential countries.

• The greater part common cause of forest diseases are fungal pathogens, primarily in the phyla Ascomycota and Basidiomycota (Durall et al., 2005).

• Harausz & Pimentel (2002) studied that pathogens have exaggerated ca. 17.4 million ha and 6% of total annual manufacture in the United States.
• Eastern Ghats are broken down by hills and organization down the Indian east coast and passes through the Orissa state, Andhra Pradesh state, Tamil Nadu state and Karnataka state. The huge range of topography, dissimilar climate, comfortable growth of vegetation and with very useful medicinal plant species (Rawat 1997). They was deserted area with particularly few attempts made for such studies in Tamil Nadu Eastern Ghats (Kadavul and Parthasarathy, 1999a & b; Chittiibabu and Parthasarathy, 2000; Jayakumar et al., 2002; Natarajan et al., 2004). These types of studies done by Anonymous (2006). He is inadequately explore in the Orissa state, they covers a 46% of forest area in Eastern Ghats.

• In sequence on floristic diversity, phytomass and composition are necessary in considerate the forest ecosystem (Gentry, 1990; Hartshorn, 1990).

• Tropical mountain forests are the richest universal. The Eastern Andean Region represents the most important “biodiversity-hotspots” (Myers et al. 2000).

• Pandit and Kotiwar (2002) studied ecological and floristic study of Bhavnagar and its surrounding, enumerated 431 species from Gir forest. The phytosociology, ethnobotanical and floristic study of Umargaon and Vapi in South Gujarat studied by Contractor, G.J. (1986)

• Forest an important and dominant ecosystem on earth. Forest provides a wealth of goods such as timber, food, and drinking and irrigation water, fuel-wood. Non timber products, fuel-wood, genetic resources and services such as release oxygen, remove air pollution, provide wildlife and human habitat, maintain biodiversity, and generate soil (Matthews et al., 2000).

• The renewal mode of tree in gap may be unreliable, in warm temperate forest, the mode of renewal of tree in gaps is not an unchangeable, but become a
variable in relation to the presence or absence of other tree such as key leading species (Yamamoto 1994).

- The Himalayan vegetation range from above tree line, alpine meadow and tropical dry deciduous forest in the foothill (Singh and Singh 1992 and Ram et al. 2004). Himalayan plant life within forest is very much affected by in the microclimate (Pande et al. 1996). Regeneration is the process of forest building by trees and survives over time (Halle et al. 1978).

- Phytosociology is the biogeographical synthesis of large areas is reflect in vegetation maps such as Europe (BOHN& NEUHÄUSL 2000) and North America (KÜCHLER 1964).

- Chidumayo (2002) studied fire plays a big role in regeneration of mature miombo woodlands, it is responsible for tree mortality with the high impact in national park.

- The vegetation of phytocorion has a low trees, a paucity of grass and dense stratum of shrub biomass and consequently fire intolerant (Cowling et al. 2005).

- Increase human inhabitants, the command of the inexpensively important biodiversity are increasing fast. Fuel species from the forests and collection of fodder has been recognized one of the chronic problems in the IHR for the degradation of forest Singh (1998).

- Different ecosystems are mentioned by the species richness theory which consider ease of use of resources and commotion factors for structure plant communities
• The calculating mechanism of biodiversity in dissimilar ecosystems is mention by the theory of species richness which considers resource availability and disturbance as factors for structuring plant communities (Palit and Banerjee 2013).

• Rural and urban area people dependence on charcoal and firewood is major cause of deforestation in African savanna woodland. High level of dependence on fuelwood, increasing human populations in some developing countries are creating a deficit of this important resource (Lekoyiet, 2006; Chidumayo, 1997).

• Pulliam (2000) studied the distribution of a species is defined by dispersion, allocation of environmental circumstances and dispersal in space and time.

• Hodges and Elder (2008) studied many plant species in the United States are on the way out because of habit degradation and habit loss.

• Cronin and Pandya (2009) studied that quantitative species data helps in understanding, helpfulness and concentration of the anthropogenic weight on each species.

• Kharakwal (2009) studied this phytosociological in sequence about each tree species is necessary for considerate their conservation organization and their ecology.

• Himalayan forests phytosociology has been subject to widespread research (Ahmed et al., 2006; Valdiya, 2002; Gairola et al., 2008; Timilsina et al., 2007; Nayar & Sastry, 1990; Myers, 1986; Joshi et al., 2001).
• Scholl and Taylor (2006) and Coop and Schoettle (2009) studied species regeneration is affected by fire.

• Tasker and Bradstock (2006) studied grazing effects can have effects on composition at regional level and forest structure.

• King (1685) deliberate plant succession between release water and swampy terrestrial surface.

• Leeuwenhoek (1687) completes the first effort to determine hypothetical value for the growth rate of an organism.

• Buffon (1756) experiential the advanced reproductive probable of each species which was checkered by a number of agents of obliteration.

• Malthus (1798) harassed the restriction compulsory by accessibility of food on human population.

• Farr (1843) considered the death rate in relative to population density.

• E. Forbes (1844) illustrious amongst the relations of animal species in different lowest point of water.

• Mobius (1877) who coin the word biocoensis to explain community.

• Schorter and Kirchner (1896) have the conditions autecology and synecology.

• Warming (1891) and Cowles (1899) describe progression on sand dune.
• Warming (1895) group plants on the foundation of water accessibility and kind of soil.

• Schimper (1898) describe the physiological foundation of plant allocation.

• Clements (1910) describe succession of plant community.

• Humboldt (1830) deliberate plant geography, describe vegetation in conditions of physiognomy and give the term ‘association’.

• Braun-Blanquet (1932) and others apprehensive themselves with the composition, organization and allocation of plant communities.

• The ecosystem move toward to ecology in progress after the introduction of word ecosystem (Tansley, 1935).

• Plant physiologist Blackman (1905) examines the perception of factor restrictive growth, while the entomologist’s residential equations for growth and growth of insects as controlled by the environment.

• Shelford (1911) introduce Law of toleration which become the Law of tolerance.

• Lotka (1925) give the Law of maximum energy.

• Andrewartha (1961) confidential ecological laws at three levels, viz; environmental, population and community.

• Andrewartha and Birch (1973) referred to a ‘Dissemination deficit law’ in insect progress.
• Pandey et al. (1969) found some ecotypes of a grass *Cenchurus ciliaris* in Ahmedabad.

• Jose (1970) found some ecotypes of *Cantharanthus roseus*.

• Pandeya (1967) work on the phytosociological study of grassland communities in Sagar.

• S.R.Joshi (1959) studied the forests of Madhya Pradesh.

• Puri (1960) completed widespread study on the forests of Himalayas.

• K.P.Singh (1967) considered the forests of horea robusta at Gorakhpur.

• Clements and Shelford (1939) place forth an idea of biome where all plants and animals are connected to each other by their coactions and response on the environment.

• Watt (1973) the achievement of a lot of ecological factors can be concentrated to a incomplete number of essential ecological variable.

• Thomas (1955) resulting the association of light strength to phytosynthesis in terrestrial and aquatic ecosystems and showed that there is linear enlarge upto a convinced optimum level called light saturation, followed by reduce at very high light intensities.

• Briggs (1963) establishes the higher strength of blue light decrease the amount of auxins in corn seedlings.
• Robert Boyle (1677) first comes to be acquainted with of the incidence of luminescence in fungi.

• Giningham (1960) deliberate some species are enthused to germinate by a brief exposure to high temperatures.

• Azzi (1957) deliberate photoperiodic stimulus for flowering is also proscribed by thermal points, initiation of flowering in a plant occurs at convinced steady which is specific for a particular species.

• Neel and Harris (1971) established that enlargement of Liquidambar tree could be reduced to 30% of normal when the plant was ‘Shaken’ for only 30 sec each day.

• In *Festuca arundinacea* shaking greater than before stomata conductance (Grace et al. 1982).

• Division of the effect may be mediate by ethylene manufacture after perfunctory stimulation (Jaffe and Biro, 1979).

• The incidence of accommodation depends on the forces exert on the plant by wind, rain etc, on the elevation from the earth at which they act on the strength of the stem (Grace, 1977).

• Bunning (1930) conduct experiment with the rhythemic motion of leaves of seedling *Phaseolus multiflorus*.

• Plants increasing in windly environments demonstrate a range of characteristics from stunted growth and deformation to definite breakage. At sites with a principal established wind plants often show a marked asymmetry (Daubenmire, 1974).
• Wardle (1965) supposed that non-development of tree further than tree line is due to complicatedness of seedling organization in highly exposed environment.

• Fire on the one give is a good quality servant when it is used with discretion and at the right time in arranges to gain the right effects and on the additional hand a bad master if allowed to be used indiscriminately (Philips, 1966).

• West (1965) experimental that the germination of fresh seed of *Themeda triandra* and African grass was not only favoured by fire but was considerably greater than before when treated with dry heat.

• A lot of species of grasses and other herbaceous plants flowered in immense abundance during the first or second flowering season after the request of fire (Biswell and Lamon, 1943).

• Request of fire the new leaves of *Aristida stricta* in Florida come into view with in three days (Lewis, 1964), *Andropogon schirensis* and *Monacymbium corisiform* in Nigeria sprout with six to ten days (Hopkins, 1963).

• Fire motivation may augment the movement of the roots and in turn increase the uptake of nutrients (Mes, 1958).

• Jones and Turrill (1945) establish that soil prejudiced following plant behavior as well being a foundation of anchorage, water and minerals; ability of seeds to germinate, size and erectness of plants, woodiness of stem, vigour of vegetative parts, extent of root system, drought and frost resistance, susceptibility to parasites, amount of pubescence and date of manifestation and number of flowers per plant.
Deforestation is the commonest issue which is accountable for soil erosion. Callous fell wounding of trees uncovered soils to straight effects of rain, snow and drought and has set in soil worsening of the gully and sheet types over extensive areas in Kashmir (J.S. Singh and M.K.Wali, 1961).

The term mutualism was primary coin by DeBary (1877) and accurately means ‘livelihood together’.

Plants and Animals in convinced cases become so a large amount mutually dependent and modified to one another that it become almost not possible for them to live sepretly. One such example has been worked out in case of a unicellular alga *Chlorella vulgaris* and *Hydra viridissima* by Muscatine and Lenhoff (1963).

A dinoflagellate, *Gymnodinium veneficum*, produce a quantity of compounds which cause the death of the fish by depolarizing nerves and muscle systems Aabbot and Ballenitine, (1957).

Cayromones are substance that also contributes in “communiqué” between species, but by suppress communication. For example, the leaves of black walnut, plane tree, dwarf oak and various maples excrete a material, which, when it falls to ground with rain, “other plants not to grow near the roots of the tree (R. Louise, 1976).

Molisch (1937) coin the term allelopathy to refer to biochemical connections between all types of plants counting microorganisms.

More than a few current investigations have used the term allelopathy to refer to the harmful effect that one higher plant has on another through the
production of chemical compounds that escape into the environment (Martin and Rademacher; 1960 and Miller; 1966).

- De Candolle (1832) experimental that Cirsium in field damage oats, Euphorbia and Scabiosa damage flax and Lolium plants damage wheat. He also explain experiments of Macaire in which it was establish that Phaseolus languish and die in water containing material previously exuded by roots of other individuals of the same species, whereas wheat flourishes in water charged with exudation from legumes.

- Stickney and Hoy (1881) experiential that vegetation beneath black walnut, Juglans nigra is very spare compared with that under most other usually used shade trees. They pointed out also that no crop will grow under or very near it.

- Schrenier and Reed (1907) established obviously that roots of seedling of wheat, oats and certain other crop plants give off materials into the rising medium that elicit chemit-tropic response by the roots of wheat and oat seedlings.

- Schrenier and Sullivan (1909) extract a nameless substance from soil exhausted by the growth of cowpeas *Vigna catjang* and establish that the substance powerfully reserved the growth of cowpeas. Furthermore, the soil from, which the inhibition was extracted, was no longer inhibitory to the growth of cowpeas.

- Oppenheimer (1922) established that the tomato fruit contain a physically powerful inhibitor of seed germination.

- Pickering (1919) establish that leachate from trays contain confident species of grasses was inhibitory to the enlargement of apple seedlings.
Cook (1921) describes the distinguishing characters of wilting of potato, tomato plants grown-up close to black walnut, *Juglans nigra*. Walnut trees have been identified for many years to create toxins injurious to apple trees.

Krylov (1970) reports that agriculture of potatoes in the space between rows of young apple trees results in accretion of toxins that inhibit tree growth.

Kozel and Tukey (1968) found that *Chrysanthemum morifolium* produce a strong phytotoxin that leaches from the leaves and is very inhibitory to the growth and development of *Chrysanthemum morifolium*.

Tukey (1969) affirmed that Chrysanthemum cannot be grown in the similar soil for more than a few years; it seems that because of the accumulation of inhibitors in the soil.

Eberhardt (1957) recognized scopolamine in the root exudates of oat seedlings cultivated in distilled water and in sand culture by paper chromatography. One more nameless glucoside called, root tip glucoside was also detected.

Bonner and Galston (1944) reported emission of transcinnamic acid by the roots of guayule. Phenolic substances were detected in spots where flax seeds were reserved on moist filter paper for germination.

Bode (1958) established by means of dissimilar colour response the toxic principle of walnut root bark was juglone.

Dethier (1954) and Fraenkel (1959) noticed that dissimilar species of insects act in response in a different way to toxic plant chemical.

Fitzgerald (1960) noticed that grazing by large herbivores seemed to maintain grass swards in a continuous stage of youth, allowing smaller antelopes to feed on highly nourishing young shoots.
- Humboldt (1908) named 10 growth forms, the physiognomy of which was supposed to be necessary for the study of plant communities.

- Grisebach (1872) alienated growth forms into seven major groups with 60 types.

- Schimper (1903) planned 15 communities on the foundation of physiognomy like forest, savannah, meadow, grassland, marsh etc.

- Warming (1909) practical the term arrangement to a vegetation of a permanent growth form e.g. evergreen forest, deciduous forest, meadow etc. physiognomy, or general appearance, is a extremely helpful method of naming and delineate communities, particularly in surveying large areas.

- Swedish ecologist Raunkiaer (1903) planned the life appearance scheme for the explanation of vegetation on physiognomic basis. Physiognomy is the outside manifestation of the community which may be describe on the basis of dominant plants, density, height, colour etc., of the plant.

- Josias Braun-Blanquet (1928) a well-known Swiss ecologist found a center of Synecology at Montpellier, France.

- Tansley (1935) distinct the ecosystem as the scheme resultant from the addition of all the living and non living factors of the environment.

- Rao (1977) investigate the ecology of convinced phytoplanktons such as diatoms, Euglenine and Myxophyceae of three clean water ponds of Hyderabad.
• Sreenivasan (1977) deliberate the limnology and fisheries of Tirmoorthy reservoir, Tamil Nadu.

• Gupta (1976) deliberate the limnology of macrobenthic fauna of Loni reservoir of Rewa of Madhya Pradesh.

• Pillai and Sreenivasan (1975) predictable the carbon and nitrogen status of some lakes, reservoirs and ponds of Tamil Nadu.

• Kant and Kachroo (1975) recorded the diurnal movement of planktons in Dal lake of Shrinagar.

• Ganapati (1972) compared the natural manufacture of a variety of types of aquatic ecosystems of India.

• Patnaik (1971) worked on the seasonal abundance and distribribution of benthos of Chilka lake, Orissa.

• Kaul (1971) deliberate the manufacture and ecology of some macrophytes of Kashmir lakes.

• Khan and Siddiqui (1970-1974) investigate the diurnal and seasonal variations in the limnological features of a perennial fish moat of Aligarh, Uttar Pradesh.

• Nayar (1970) deliberate ecology of rotifer populations of two ponds at Pilani, Rajsthan.

• David et al., (1969) deliberate limnology and fishery of the Tungabhandra reservoir.
• Moitra and Bhowmik (1961) deliberate seasonal cycles of rotifers in a freshwater fish pond in Kalyani, West Bengal.

• Dudgeon (1921) contributed a complete ecological explanation of the higher gangetic plains and he employed the concept of succession in his investigations.

• Kashyap (1932) worked out the ecology of alpine vegetation of Himalaya and Tibet.

• G.S.Puri (1950) deliberates the allocation of conifers in Kulu Himalayas and also investigated the geology of this area.

• Raji (1955, 1956) complete explanation on the phytogeography of the Mysore hill tops.

• Ahuja (1961) deliberate ecology, phytosociology and phytogeography of the vegetation of the humid tropics.

• Shindhu (1961) worked on the ecology of mangroves.

• Gupta (1961) deliberate the vegetation of the catchment areas of river Ganga and Yamuna with orientation to their soil and water conservation problems.

• Sharma (1961) worked out the ecology of the vegetation of arid zones.

• Homiji (1962) deliberate the bioclimates of India in relation to vegetational criteria.
• R. Misra (1944-48) initiated complete autecological studies on herbaceous plants of dissimilar habitats such as aquatic, ravines, eroded river banks and low lying areas.

• Misra and Rao (1948) deliberate autecology of *Linndenbergia polyantha*.

• Whyte et al., (1955) published the explanation of different grasslands of India.

• Bhatia (1954) worked on the ecology of *Tectona grandis* forest of Madhya Pradesh.

• Trivedi (1955) worked out the ecology of *Sesbania bispinosa*.

• Mall and co-worker complete autecological studies of *Chrozophora rotleri* and *Achyranthus aspera* in 1956 and of *Cassia tora, Cassia obtusifolia* and *Tridex procumbens* in 1957.

• Ramkrishnan (1958) studied ecotypic discrimination in some plants of Varanasi.

• Joshi (1958) investigated phytosociology and autecology of *Anogeisus latifolia* of Madhya Pradesh.

• Jain (1958) complete phytosociological and autecological studies on *shorea robusta* in Madhya Pradesh.

• Ramam (1961) deliberate the soil root associations in grassland communities of Varanasi and in 1968, he studied certain wood land ecosystems.

• K.P.Singh (1998) predictable waste manufacture and nutrient turnover in deciduous forests of Varansi.

• R.M.Isra (1990) deliberates the form of energy move along the terrestrial food chain, his predictable primary efficiency of terrestrial communities at Varanasi. In 1992 he complete opinion of the primary manufacture of Chakia Forest and also complete IBP study of organic output and nutrient cycling in the monsoon forests, grassland and cropland.

• Pandey and Kuruvilla (1994) deliberate natural forest communities, their mesh biomass and position of fundamental biogenic salts in Dang Forests, Gujarat.

• Rao, Dabral and Pandey (1997) predictable litter manufacture in forest plantation of Pinus roxburghii, Tectona grandis and Shorea robusta at New Forest Dehradun.

• Gopal (1993) complete a survey of Indian studies on ecology and manufacture of wetland and shallow water communities.

• Muhammad Ayub (2009) deliberate Phytosociological and ethno botanical studies in Pakistan.

• Phytosociological technique of frequently engage the quantitative judgment of a variety of parameters like cover, abundance, frequency, etc. Palmer (2002).

• Phytosociology of xerophytes’ wood ground at the bank of the sao, Francisco River Brazil, record 39 genera studied by Clovis E.S (2003).

• Pandit and Kotiwar (2002) deliberate the Gir forest ecosystem, Gujarat and recorded 431 Sp. of flowering plant.

• Phytosociology, floristic and ethno botanical learn of Umarpada forest in South Gujarat and recorded 751 plant species in this area done by Vashi B.G. (1985).
• Phytosociological learn of dissimilar Plant Communities of Pir Chinasi Hills of Azad Jammu and Kashmir survey conduct on the plant life of Pir Chinasi Hills has been confined from biotic meddling and can be used as a typical instance of natural vegetation showing vigorous growth. Environmental factor such as type of weather, soil situation, high temperature, moisture, rain fall, wind speed like factor study with vegetation arrangement they also study soil nature total of 77 plant species were recorded by Nafeesa Z. Malik, M. Arshadi and sarwat N. Mirza (2007).

• Phytosociological learn to Tropical Dry Deciduous Forest of Boudh District, Orissa, India, and learn was approved out in tropical dry deciduous forest of Boudh district, Orissa. They inventoried a total of 187 species with in a four hectare sampled area studied by S.C.Sahu, N.K. Dhal, C.Sudhakar Reddy, ChiranjibiPattanaik and M. Brahmam (2007).

• Phytosociological analysis of Mangrooves at Kannur District, Kerala studied by Vidyasagaran K., Ranjan M.V. , Maneeshkumar M , Praseeda T.P. (2011). They study comprise 12 species beneath nine genera belonging to seven families. Rhizophoraceae represent utmost genera of four species. Phytosociological investigation exposed that *Acanthus illicifolius* registered maximum density and relative density follow by *Avicennia officinalis*. Whereas relative frequency was maximum recorded for *Avicennia officinalis* unveiled the dominance of *Avicennia officinalis* which, registered maximum Importance valueindev (IVI) and relative importance value index (RIVI) amongst the 12 mangroves pecies dispersed all over. Though this species constitute relatively lesser density and frequency, examination on floristic diversity of mangroves of Kannur.

• The plant life of ReservaBiologica San Francisco, Zamora-Chinchipe, Southern Ecuador- a phytosociological mixture. He experiential a small number of floristic inventory and still a smaller amount syntaxonomical vegetation
descriptions of tropical mountain forests survive. They as well learn syntaxonomical behavior of the plant life of ReservaBiologica San Francisco at the northern boundary of Podocarpous National Park, Ecuador. The “LowerMontane Forests” he experiential forest arrangement and floristic composition modify totally. The vegetation types belong to this “UpperMontane Forest” forms the new Purdiaeaetalianutantis, rising on Histicpetraquepts. They correspond to a monotypic vegetation kind studied by Rainer W. Bussmann (2003).

- Phytosociological study of the forsts by means of sessile oak and Norway spruce from South-Eastern Transylvania deliberate by A.Indreica, M. Kelemen (2011). He learn the forests with sessile Quercus petraea and Picea abies from south-eastern Transylvania represents an odd type of Phytocenoses, quite strange for the presentday vegetation of Romania’s territory. Aspire of the learn is to give a detailed explanation of the vegetation and to recognize the Phytosociological and typological units to which in could belong. Beside this, stand arrangement and renewal status of the main tree species are illustrate. There learn site is located approximately Carpathian intermountain depression Brasov and Ciuc, where plant life had a unusual history and today sessile oak forests on far above the ground height exist, interfering with spruce forests.

- Uses of Climbers for Ethno medicinal from Saraswati River Region of Patan District, North Gujarat studied by A.R. Seliya and N.K. Patel (2009). They review throughout the years 2007 and 2008 & experiential 30 angiospermic species of climber are record throughout these period organism practiced by rural of these area more than a few fiels trip were conduct to document the ethno medicinal uses of angiospermic species of climber from the rural of Saraswati river region of Patan district of North Gujarat area of Gujarat state.

- Evaluation and conservation of Tree Diversity of Uttar Pradesh duing by Kamal Kishor, Abhinandan Mani Tripathi, Sribash Roy and LalBabu
Chaudhary (2011). India is one of the 17 mega diverse countries in the world with four biodiversity hotspots.

- Change in rainfall forest tree diversity, domination and infrequency crossways a seasonality incline in the Western Ghats, India studied by Priya Davidar, Jean Philippe Puyravaud and Egbert G. Leigh (2005). They assess the special effects of latitude, altitude and type of weather on the alpha diversity of rain forest trees in the Western Ghats (WG) of India. They experienced whether stem density, dominance, the prevalence of rarity, and the amount of understory trees are considerably connected with alpha diversity. They finished this study demonstrate that seasonality influence rain forest tree diversity in the WG of India.

- Phytosociology of roadside communities to identify ecological potentials of tolerant species studied by J.G. Ray and Jojo George (2009). They review 110km of demanding roadsides of a biodiversity-rich tropical zone, Kottayam District of Kerala, South India, Phytosociology of communities on roadsides is important in the recognition of the amount of tolerance of species, because the technique in general, is careful resourceful and suitable to charge the ecological potentials of plants in natural communities. Floristic review and Phytosociological psychoanalysis of 110 km of demanding roadsides of a biodiversity-rich tropical zone, Kottayam District of Kerala, South India, Showed 85 species belonging to 27 families in a different way broadminded to the demanding environment, Hyper-tolerance is useful clue to the preli.

- Phytosociological study of Berberisaristata and its connected shrub species in Himachal Pradesh and Jammu and Kashmir studied by Majid Ali and K. Rai Sharma (2010). The floristic 16 composition of Berberis aristata and its connected shrub species was, approved out at six dissimilar sites i.e. four in Himachal Pradesh. The consequences of floristic composition of Berberis aristata and associated shrubs species indicate that the the majority leading shrub species record were Berberis aristata, Berberis lycium, Viburnum
cotinifolium and Daphne cannabina. The utmost shrubs were experiential in Chail where the numeral of species is 8 while in Rajgarh, Totu and Narkanda had 6 species each. As regards the number of shrub species Lolab-valley experiential least numeral of shrubs (4). In six dissimilar sites it was experiential that resemblance was maximum between Lolab valley and Totu with 80.00(%) and lowest between Narkanda and Rajgarh.

- The conventional worshiping plant in borsad talukas studied by Rinku Shah et al. (2012). They report convinced plant or division of plant used in dissimilar carnival they used 34 plants Sp. belong to 29 genera and 22 families throughout a number of festival similar to vat savitri, sitrasatam, hanuman jayanti, holi.

- Phytodiversity Studies in Sri Ramathirth Sacred Grove, Halasi, Khanapur Taluk, Belgavi District, and Karnataka studied by G. P. Yelvattimath and K. Kotresha1 (2011). The writing reveal that, the evaluation of blessed grove is unfinished in India and chiefly in Karnataka. This manuscript attempt to draw attention to the position played by Sri Ramathirth sacredgrove, Halasi, Khanapur taluka, Belgavi District, Karnataka. The learn proceedings 274 species belong to 215 genera and 80 families, cover 124, 59, 51 and 40 species of herbs, shrubs, trees and climbers respectively.

- An evidence of the tree riches of m. G. Science institute, Ahmedabad studied by N.R. Mulia, N.R. Modi and S. N. Dudani (2010). The region has wealthy vegetation connecting a lot of dissimilar type of tree species. In this learn 72 species of trees belonging to 27 families were established to be present. Rare trees like *Guacam officinalis* L., *Saraca indica* L., *Adansonia digitata* L., and *Bombax ceiba* D.C., were as well establish to be taking place in the campus.

- Fieldwork works out in Floristic Ethnobotanical and Ecological Research studied by B.S. Sidana, N.B. Patel and K.C. Patel (2010). The in attendance work deal with the method which was practical in floristic, ecological and ethano botanical research work.
• Tree Species Diversity of Modasa Taluka, District Sabarkantha (Gujarat) India deliberate by M. S. Jangid and S. S. Sharma (2010). The in attendance paper deal by means of tree species diversity of taluka Modasa, plants were composed from the variety of villages and forests 20 area counting hill and hillocks. Total 131 tree species belonging to 94 genera and 38 families have been enumerated.

• Weed incidence And Crop relationship of Valsad District In South Gujarat studied by T.G.Gohil, (2010). In Valsad district mainly Wheat, Rice, Sugarcane, Vegetables, Fruits etc. are cultured. Countless weeds manufacture in the field of cultured crops which are a grave difficulty as they struggle with neighbouring crops or plants of financial significance and decrease their yield. To appreciate the crop weed association present learn is approved out on the weeds of Valsad.

• Study of aquatic angiospermic plants of patan District studied by A.J.parmar and N.K.patel (2010). The present examination of the aquatic angiosperms rising all through the Patan district was approved out. A short taxonomic explanation of each species is known with present classification, vernacular name, family and uses. Phyllanthus reticulatus, Cynodon dactylon Colocasia esculenta, Eichhornia crassipes, Xanthium indicum, Lemna perpusilla, Ipomoea aquatica, Nymphoides indicum, Ludwigia repens, Polygonum orientale, Pistia stratoites Wolffia arrhiza, were very common.

• Floristic study of dadra and nagar haveli studied by Rajeshwary Nair (2011). The learn was approved out in the whole country. In excess of 800 plants belonging to more than 100 families were deliberate. The present area of Dadra and Nagar Haveli is chosen for the floristic studies.

• Study of angiospermic flora of kachchh district, Gujarat, india studied by Y. S. Patel, R. M. Patel, P. N. Joshi and Y.B. Dabgar(2011).The learn reveal that in
malice of the dry region, Kachchh district supports whole 988 higher plant species of belong to 118 families and 503 of 805 dicots and 183 monocots.

- Ethno botanical Study of Tapkeshwari Hill, Bhuj, Kachchh, India studied by Y. S. Patel, E. P. Joshi and P. N. Joshi (2010). Ethnobotanical study be approved to bring together in sequence on the utilize of medicinal plants by restricted community in Tapkeshwari hill of Bhuj Taluka, Kachchh district, India. Plants have been utilized both in the anticipation and treat of a variety of diseases of human societies. Ayurveda, Homeopathy, Sidda, Unani, etc are our traditional systems of medicines. A total of 37 ethnomedicinal plants species distributed in 35 genera and 25 angiosperm families are documented in this study.

- Ethnomedicinal plants utilize for powerlessness, coldness and sexual weak point in danta taluka (Gujarat) studied by N.k.pateli (2010). The present paper deal with species of flowering plants usually utilize by dissimilar adivasi community to treat business enterprise and gynecological diseases and disorder. The source of disease, its symptom, and plant organs utilized and method of training of remedy are provide.