Angiospermic Flora of Bethune College Campus, Kolkata, West Bengal.

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Abstract:

The purpose of the present study is to compile related information on some Angiospermic plants growing in Bethune College Campus, Kolkata. The paper includes a list containing a total of 119 angiospermic species (102 dicot and 17 monocot) under 106 genera belonging to 49 families which has been prepared after the survey of the area during the years 2012 and 2013. These plants were distinguished on their habit in to 4 groups, namely herbs, shrubs, climbers, and trees and their respective percentages were also mentioned. The trees attained the highest position (48%) among the other habit groups. The flora enumerates both natural elements and also the introduced or cultivated species growing in the campus. The common names, flowering-fruiting time and medicinal or other economic importance of these plants are provided

Key words: Bethune College Campus, Angiosperms, Medicinal Uses.

Introduction:

Bethune College is the first women's college in India. It was founded as a school in 1849 by John Elliot Drinkwater Bethune, and in 1879 developed into the first women's college in India, after whom it is named as Bethune College. The college is located in an important place, in the heart of North Kolkata and is situated opposite Hedua Park (now known as Azad Hind Bagh). The area of Bethune College Campus covers an area of about 9725sq metre. It lies between 22°30'N Latitude and 88°25'E Longitude. The climate is tropical, like Gangetic West Bengal. The weather remains dry during winter (mid-November to mid-February) and humid during summer and rainy season with a range between 50-90% humidity. Average rainfall ranges from 1500-2000 mm/yr but generally fluctuates from year to year. The maximum temperature is 41°C in the month of May and the minimum temperature is 10° C in the month of January. Soil is mainly grey in colour with bulk density varying from 1.23 gm/cm^3 to 1.31 gm/cm^3. It varies from sandy to clay loam. The soil in this place exhibits multitype of ecological conditions having soil salinity ranging from 0.5% to 0.8% (Anonymous, 2006).

The Campus houses a good number of plants and the perusal of literature reveals that there is no published record on the flora of this campus which represents an interesting floristic composition. The findings of the study may be helpful for further research in Botany or allied disciplines.

Materials and methods

The list of the plants is prepared based on repeated seasonal collections of plant specimens from the campus, either in the flowering or fruiting stage. The specimens collected were identified by consultation of literature and authentically identified herbarium specimens. For identification purpose, collected specimens were matched with the specimens at the Central National Herbarium (CAL) and the Calcutta University Herbarium (CUH). After collection, the specimens were pressed, preserved and mounted on herbarium sheets following the standard and modern herbarium techniques (Jain and Rao, 1977) which have been deposited as voucher specimens in the Departmental Herbarium. The field numbers are written after the surname of the first author (collector) which is abbreviated as '*Sanyal*'.

Then search of relevant literature (Prain, 1903; Chattopadyay and Paria,2005; IPNI, Tropicos, The Plant List) including recent ones for determining correct names of taxa was followed. In the enumeration of the taxa, herbs are first tabulated followed by shrubs and trees and the arrangement of families under each heads were considered in an alphabetical order for the sake of convenience (Table 1). Flowering and fruiting periods were recorded based on field observations. The economic or medicinal importance of the different taxa in the campus were recorded in consultation with some relevant literature (Ambasta *et.al.* 1986; Chopra *et.al.* 1999; Jain, 1991; Chatterjee and Pakrashi, 2001). However, no attempt has been made to prepare artificial key for identification of these plants, which may be done in future.

Results/ Observations:

A comprehensive survey of Angiosperm flora of Bethune College Campus is presented in this report. The Campus has a great wealth of plants some of which are weeds and others are cultivated. Their scientific names, local names, habit, flowering-fruiting time, uses are enlisted in Table 1 along with their voucher numbers.

Table 1. **List of plants in the studied area.**

HERBS						
Voucher nos.	BOTANICAL NAME	HABIT	COMMON NAME	FAMILY	FLOWERING / FRUITING	ECONOMIC / MEDICINAL IMPORTANCE
Sanyal 33	*Acalypha indica* L. **Plate I:a**	herb	Muktojhuri	Euphorbiaceae	Throughout the year	Leaf is useful in broncitis, asthma, pneumonia and rheumatism, its roots and leaves have laxative properties. juice of leaves is considered an efficient emetic.
Sanyal 54	*Achyranthes aspera* L.	herb	Apang	Amaranthaceaee	March to May	Whole plant useful in treatment of vomiting, bronchitis, heart disease, piles, itching abdominal pains, ascites, dyspepsia, dysentery, blood diseases etc.
Sanyal 42	*Ageratum conyzoides* L.	herb	Dochunti	Asteraceae (Compositae)	July to September	Whole plant treats pneumonia, but the most common use is to cure wounds and burns.
Sanyal 76	*Alternanthera philoxeroides* Griseb	herb	Alligator weed	Amaranthaceae	March to May	Whole Plant used to treat 'female diseases', useful as diuretic and to treat gonorrhoea.
Sanyal 74	*Alternanthera sessilis* (L.) Br.	herb	Sanchi-Sak	Amaranthaceae	April to June	It is a used for indigestion and treatment for snakebites and to stop the vomiting of blood.
Sanyal 53	*Amaranthus viridis* L. **Plate I:b**	herb	Ban Notey	Amaranthaceae	June to October	The plant is a good cattle fodder and green manure. The leaves are diuretic and purgative, and are used in poultices (fresh or as dried powder) to treat inflammations, boils and abscesses, gonorrhoea, orchitis and haemorrhoids.
Sanyal 1	*Andrographis paniculata* Nees.	herb	Kalmeg	Acanthaceae	November to December	Leaves anthelmintic, digestive and useful in hyperdispsia, burning sensation, wounds, ulcers, chronic fever, malarial and intermittent fevers, inflammations, cough, bronchitis, skin diseases, leprosy, colic, flatulence, diarrhoea, dysentery, haemorrhoids etc.
Sanyal 46	*Blumea lacera* (Burm. f.) DC.	herb	Jangli Muli	Asteraceae (Compositae)	January to April	Leaves considered a valuable homoeopathic drug, useful in case of enuresis, neuralgia, headache, cold borne cough. A tincture is useful in case of bleeding piles.
Sanyal 61	*Boerhaavia diffusa* L.	herb	Punarnava	Nyctaginaceae	March to June	Root applied as a diuretic, and as stomachic, cardiotonic, hepatoprotective, laxative, anthelmintic, febrifuge, expectorant and purgative.
Sanyal 26	*Canna indica* L.	herb	Sarbajaya	Cannaceae	August to October	The plant is considered to be demulcent, diaphoretic and diuretic.
Sanyal 50	*Catharanthus roseus* (L.) G. Don	herb	Nayantara	Apocynaceae	March to July	Whole plant: treat malaria, diarrhea, diabetes, cancer, and skin diseases.
Sanyal 117	*Cayratia trifolia* (L.) Domin **Plate II:l**	herb	Wild grapes	Vitaceae	April to September	The root mixed with ground pepper applied to boils.
Sanyal 4	*Centella asiatica* (L.) Urban	herb	Thankuni	Apiaceae (Umbelliferae)	March to August	Whole plant recommended for the treatment of various skin conditions such as leprosy, lupus, varicose ulcers, eczema, psoriasis, diarrhoea, fever, amenorrhea, diseases of the female genitourinary tract and for relieving anxiety and improving cognition.
Sanyal 27	*Cleome rutidosperma* DC.	herb	Beguni hurhuria	Capparidaceae	Throughout the year	Roots for healing of wounds.
Sanyal 104	*Clerodendrum splendens* G.Don	herb	Flaming Glory bower Vine	Verbenaceae	December to April	leaf aqueous extract is used to alleviate symptoms of diabetes, obesity and hypertension.
Sanyal 30	*Coccinia grandis* (L.) Voigt **Plate I:f**	herb	Telakucho	Cucurbitaceae	March to September	Leaves famous for its hypoglycemic and antidiabetic properties.
Sanyal 48	*Colocasia indica* L.	herb	Kochu	Araceae	May to August	Whole plant used traditionally in jaundice, diseases of abdomen, spleen, inflammation. The juice of the leaves of the plant used as digestive, laxative, diuretic, astringent and traditionally used for treatment of rheumatic arthritis.
Sanyal 28	*Commelina benghalensis* L.	herb	Kanchira	Commelinaceae	Throughout the year	Leaves and stems as vegetables and as feed for livestock. Different components also used as medicine for ailments such as sore feet, sore throat, burns, eye irritation, thrush in infants, and stomach irritation.

Sanyal 66	*Cynodon dactylon* (L.) Pers.	herb	Durba ghash	Poaceae (Gramineae)	March to September	Rhizome used traditionally for the treatment of congestive heart failure, have diuretic properties and useful in the treatment of congestive heart congestion.
Sanyal 31	*Cyperus rotundus* L.	herb	Mutha	Cyperaceae	February to August	Root is pungent, acrid, cooling, astringent, appetizer, stomachic, anthelmintic and useful in treatment of leprosy, thirst, fever, blood diseases, biliousness, dysentery, pruritis, pain, vomiting, epilepsy, opthalmia, erysipelas etc. According to the Unani system of medicine, the root is diuretic, emmenagogue, diaphoretic, anthelmintic, vulnerary and useful for ulcers, sores, fevers, dyspepsia, urinary concretions. Useful in checking soil erosion.
Sanyal 65	*Dactyloctenium aegyptium* (L.) Willd.	herb	Egyptian grass	Poaceae (Gramineae)	January to April	Whole plant, seeds as astringent, anthelmintic, tonic. Decoction of plant, in fresh or in dry state, used internally for dysentery and acute hemoptysis.
Sanyal 44	*Eclipta prostrata* (L.) L.	herb	Keshut	Asteraceae (Compositae)	Throughout the year	Leaves as home remedies for hair, jaundice, fatty liver.
Sanyal 69	*Eleusine indica* (L.) Gaertn.	herb	Crowsfoot grass.	Poaceae Gramineae)	October-December	Young plants used as fodder.
Sanyal 70	*Eragrostis tenella* (L.) P. Beauv.ex Roem.& Schult.	herb	Shada fulka	Poaceae (Gramineae)	Throughout the year	Young plants used as fodder.
Sanyal 118	*Kaempferia galanga* Linn.	herb	Bhui champa	Zingiberaceae	September to December	Rhizomes, root stocks and leaves useful in dyspepsia, skin disease, rheumatism, malaria.
Sanyal 32	*Kyllinga monocephala* Rottboel.	herb	Nirbishi	Cyperaceae	March-September	The root used as fumigants and is put in food and medicine for flavor.
Sanyal 38	*Leonurus sibiricus* L.	herb	Roktodron	Lamiaceae (Labiatae)	July-August	Roots and leaves used as febrifuge.
Sanyal 112	*Mazus rugosus* Lour.	herb	Japanese Mazus	Scrophulariaceae	April to August	Whole plant is used for treating of pain in stomach.
Sanyal 45	*Mikania micrantha* (L.) Kunth	herb	American rope, clock vine	Asteraceae (Compositae)	January to March	The macerated plant used to apply to new wounds, insect stings and other skin irritations, and the leaves after being boiled in saltwater and cooled are applied to the skin to relieve itching"
Sanyal 36	*Ocimum sanctum* L.	herb	Tulsi	Lamiaceae (Labiatae)	Throughout the year	Leaf cures cough.
Sanyal 67	*Oldenlandia corymbosa* L.	herb	Diamond flower	Rubiaceae	February-June	Used in the treatment of jaundice and gonorrhoea
Sanyal 68	*Oldenlandia paniculata* L.	herb	sonare mugura	Rubiaceae	June to August	Plants decoction to treat fever, stomach disorders and diarrhoea.
Sanyal 56	*Passiflora coccinea* Aubl.	herb	Red passion flower	Passifloraceae	Mid winter to late summer	Leaves used to treat nervousness, menopausal problems and Parkinson's disease.
Sanyal 57	*Peperomia pellucida* (L.) H.B. & K.	herb	Luchipata	Piperaceae	Throughout the year	Used for treating abdominal pain, abscesses, acne, boils, colic, fatigue, gout, headache, renal disorders, and rheumatic joint pain.
Sanyal 115	*Pouzolzia indica L.*	herb	Graceful Pouzolz's bush	Urticaceae	September to October	Powder of leaf used against scorpion bites.
Sanyal 3	*Rauvolfia serpentina* Benth. ex Kurz. **Plate II: d**	herb	Sarpagangha	Apocynaceae	March to August	Leaf juice reduces blood pressure.
Sanyal 94	*Rorippa indica* (L.) Hiern	herb	Ban-sharshe	Cruciferae (Brassicaceae)	Throughout the year	Leaves have antiscorbutic, depurative,diuretic, expectorant, hypoglycemic, cancer reventive, purgative properties.
Sanyal 55	*Ruellia prostrata* Poir.	herb	Bell weed	Acanthaceae	August to September	Leave believed to be anticancer against the epidermis of the nasopharynx region and slightly hypoglycemic.
Sanyal 77	*Ruellia tuberosa* L. **Plate II: f**	herb	Baro Patka/Minnie Root	Acanthaceae	February to April	Leaves used as a diuretic, anti-diabetic, antipyretic, analgesic, antihypertensive, gastroprotective, and to treat gonorrhea. It is used as a natural dye.
Sanyal 15	*Sansevieria roxburghiana* Schultes f.	herb	Murba	Lilliaceae (Asparagaceae)	May to August	Plant's sap has antiseptic qualities, and the leaves used for bandages in traditional first aid.

Sanyal 110	*Scoparia dulcis* L.	herb	Bandhoney	Scrophulariaceae	Throughout the year	Leaves and stem for eye disease, used in treatment of fever, cough, bronchitis and dental trouble and diabetes.
Sanyal 108	*Solanum nigrum* L.	herb	Kakmachi	Solanaceae	July-October	Leaves used in fever and diorrhoea. Fruit as tonic and laxative.
Sanyal 16	*Synedrella nodiflora* (L.) Gaertn. **Plate II: i**	herb	Syndrela	Asteraceae (Compositae)	August to January	Leaves used as Tonic.
Sanyal 87	*Tinospora cordifolia* (DC). Miers	herb	Guduchi/ Gulancha	Menispermaceae	March-June	Whole plants for diabetes, high cholesterol, allergic rhinitis (hay fever), upset stomach, gout, lymphoma and other cancers, rheumatoid arthritis (RA), hepatitis, peptic ulcer disease (PUD), fever, gonorrhea, syphilis, and to boost the immune system.
Sanyal 29	*Tradescantia spathacea* Swartz	herb	Boat Lily	Commelinaceae	March to November	Used as an alternative medicine to treat cancer.
Sanyal 107	*Triumfetta rhomboidea* Jacq. **Plate II: k**	herb	Bon okra	Tiliaceae	August to November	Roots diuretic, used in dysentery, Bark and leaves used in diarrhoea, leaves used in gonorrhea and leprosy.
Sanyal 10	*Typhonium trilobatum* (L.) Schott	herb	Gathkachu	Araceae	May to July	Leaves used for treatment of various ailments of skin and dermatological disorders especially cuts, wounds and burns.
Sanyal 109	*Vandellia crustacea* (L.) Benth.	herb	Brittle False Pimpernel,	Scrophulariaceae	July to August	Whole plant paste with lemon juice taken orally to cure excess bile secretion. Applied externally on boils.
Sanyal 43	*Vernonia cineria* (L.) Lees.	herb	Sahadebi	Asteraceae (Compositae)	Throughout the year	Leaves used for diabetes, fever reduction, and to prevent joint pain associated with AIDS.

SHRUBS AND TREES

Voucher nos.	BOTANICAL NAME	HABIT	COMMON NAME	FAMILY	FLOWERING / FRUITING	ECONOMIC / MEDICINAL IMPORTANCE
Sanyal 85	*Acacia auriculiformis* A. Cunn.ex Benth	tree	Black wattle	Mimosaceae	August to October	Plant has antifilarial, anthelmentic properties.
Sanyal 86	*Adenanthera pavonina* L.	tree	Raktochandan	Mimosaceae	March to April	Leaves for treating wounds, boils, rheumatism, and arthritis, diarrhea, gout, and leprosy.
Sanyal 98	*Aegle marmelos (L.) Corr.*	tree	Bael	Rutaceae	June to August	Leaf juice cures fever and asthma.
Sanyal 89	*Allamanda cathartica* L.	Climbing shrub	Yellow Allamanda	Bignoniaceae	Throughout the year	Used to treat liver tumors, jaundice, splenomegaly, and malaria.
Sanyal 6	*Alstonia scholaris* (L.) R.Br	tree	Chatim	Apocynaceae	April to June	Bark used for fever.
Sanyal 11	*Areca catechu* L.	tree	Shupuri	Arecaceae (Palmae)		Leaf extraxt has antidepressant properties. the areca nut, is often chewed along with the betel leaf.
Sanyal 14	*Aristolochia indica* L.	Climbing shrub	The Indian birthwort/ Ishwari mul	Aristolochiaceae	June to August	Whole plant: Used against cancer.
Sanyal 78	*Artabotrys odoratissima* R.Br	shrub	Kathali champa	Annonaceae	March to May	Fruit and bark used to treat fever, diarrhoea, dysentery, bruises, cuts, pains, sprain, inflammation, gout, helminthiasis, leprosy, skin disease, wounds, ulcers, tumours, amenorrhoea, dysmenorrhoea, cough, asthma, bronchitis, flatulence, colic and constipation.
Sanyal 88	*Artocarpus heterophyllus* Lamk.	tree	kanthal	Moraceae	February to July	Leaves useful in fever, boils, wounds, skin diseases. Young fruits are acrid, astringent, carminative and tonic. Ripe fruits are cooling, laxative, aphrodisiac and tonic. Seeds are diuretic, aphrodisiac. Wood is nervine and sedative.
Sanyal 90	*Artocarpus lakoocha* Buch-Ham.	tree	Monkey Jack, Dahu,	Moraceae	March to April	Latex applied to wounds to disinfect. Fruits edible.
Sanyal 62	*Averrhoa carambola* L.	tree	Kamranga	Oxalidaceae	April to December	Fruit juice cures jaundice.
Sanyal 40	*Azadirachta indica* Adr. Juss.	tree	Neem	Meliaceae	April to May	Fresh leaves used in skin diseases and chicken pox.
Sanyal 22	*Bauhinia acuminata* L.	tree	Kanchan	Caesalpiniaceae	April to June	Bark and leaves relieves biliousness.
Sanyal 93	*Bauhinia variegata* L.	tree	Lal-Kanchan	Caesalpiniaceae	Februar to	Leaves show antioxidant, antibacterial, anti-inflammatory, and cancer-fighting effects.

					April	Fruit, seeds, leaves, flowers, and flower buds used as food source in some cultures.
Sanyal 47	*Bombax malabaricum* L.	tree	Shimul	Bombacaceae	December to March	Used as anthelmitic, vermifuge, vermicide, antimicrobial and antioxidant activities and properties.
Sanyal 59	*Butea monosperma* (Lain.) Taubert **Plate I:c**	tree	Palash	Papillionaceae	March to April	It is used for timber, resin, fodder, medicine, and dye, used as astringent antidiarrheal, antidysenteric, febrifuge, aphrodisiac, purgative, anthelmintic drugs.
Sanyal 24	*Cassia fistula* L. **Plate I:d**	tree	Amaltash/ Badarlathi	Caesalpiniaceae	April to June	Seeds effective in treating constipation and in treating ulcers. The herb is very effective in treating piles.
Sanyal 23	*Cassia siamea* Lamk. **Plate I:e**	tree	Kassod tree/ Minjiri	Caesalpiniaceae	November to March	In traditional medicine, the fruit is used to charm away intestinal worms and to prevent convulsions in children. The heartwood is a laxative.
Sanyal 20	*Caesalpinia pulcherrima* (L.) Swartz	tree	Krishnachura	Caesalpiniaceae	April to September	Leaves used as febrifuge.
Sanyal 18	*Ceiba pentandra* (L.) Gaertn.	tree	Swet Shimul	Bombacaceae	February to early March	Bark decoction used as diuretic, aphrodisiac, and to treat headache, and type II diabetes
Sanyal 58	*Dalbergia sissoo* Roxb.	tree	Sissoo	Papillionaceae	March to May	Reported to be stimulant, sissoo is a folk remedy for excoriations, gonorrhea, and skin ailments.
Sanyal 25	*Delonix regia (*Bojer) Rafin.,	tree	Gulmohar	Caesalpiniaceae	Summer months	The leaf used by folk medicinal practitioners for controlling sugar level in diabetic patients.
Sanyal 21	*Dimocarpus longan* Lour.	tree	Ashphal	Sapindaceae	March to May	Fruit used for promoting blood metabolism, soothing nerves, and relieving insomnia
Sanyal 35	*Drypetes roxburghii(Wall.) Hurus.* **Plate I:g**	tree	Putranjiba	Euphorbiaceae	March to May	Bark and leaves used as medicines, leaves and fruits used for treating rheumatism.
Sanyal 63	*Erythrina indica* Lam.	tree	Madar	Papillionaceae	March to May	Leaves used traditionally for treatment of liver trouble, joint pain, dysentery, convulsion, as diuretic, laxative, and anthelmintic.
Sanyal 79	*Ficus benghalensis* L. **Plate I:i**	tree	Bot	Moraceae	April to June and December to February	Useful in treatment of biliousness, ulcers, erysiperals, vomiting, vaginal complains, fever, inflammations, leprosy. Latex is aphrodisiac, tonic, vulemary, muturant. Useful in piles, nose-diseases, gonorrhea etc. Aerial root useful in syphilis, inflammation of lever, dysentery etc. Planted for soil conservation. Timber is used for well-curbs, furniture.
Sanyal 80	*Ficus benjamina* L.	tree	Java fig	Moraceae	October to January	It is astringent to bowels; useful in treatment of biliousness, ulcers, erysipelas, vomiting, vaginal complains, fever, inflammations, leprosy. latex is aphrodisiac, tonic, vulernary, maturant, lessens inflammations; useful in piles, nose-diseases, gonorrhea etc. The aerial root is styptic, useful in syphilis, biliousness, dysentery, inflammation of liver etc.
Sanyal 81	*Ficus elastica* Roxb. ex Hornem.	tree	Rubber tree	Moraceae	March to April	strong antioxidant properties that help in prevention and therapy of various oxidative stress.
Sanyal 82	*Ficus glomerata* Roxb. **Plate I:j**	tree	Bhui damur	Moraceae	March-May & September to November	Root useful in treating dysentery, diarrhoea, hydrophobia, sap of root used in diabetes. Leaves used in bronchitis, bilious affection, haemorrhage. Bark used as astringent, antidiabetic, refrigerant, in asthma and piles. Latex used in piles, diarrhea, aphrodisiac and administered in haemarrhoids. Leaf extract used in inflammation and sprains
Sanyal 83	*Ficus hispida* L. f.	tree	Kak-dumur	Moraceae	April to September	Plant pacifies leukoderma, psoriasis, hemorrhoids, ulcers, jaundice, inflammations, fever, alopecia.
Sanyal 84	*Ficus religiosa* L.	tree	Ashathya	Moraceae	March to October	Bark- useful in inflammations and glandular swellings of neck, gonorrhea, ulcers, skin disease. Root bark used in stomatitis, clean ulcers. Root, bark is aphrodisiac and good for

						lumbago. Root for gout, chewed to prevent gum disease. Fruit is laxative, promotes digestion, aphrodisiac, checks vomiting. Powdered fruit used for asthma. Seed useful in urinary troubles.
Sanyal 95	*Ficus rumphii* Blume	tree	Pakur	Moraceae	March to November	Secretion from plant used as anticough and antidiuretic drug.
Sanyal 100	*Hamelia patens* Jacq. **Plate I:h**	tree	Scarlet Hamelia	Rubiaceae	Almost throughout the year	Fruits were eaten raw or fermented into a beverage. Used as a treatment for skin ailments, bruises, measles, rheumatism, headache. Used to tan leather.
Sanyal 71	*Ixora coccinea* L.	shrub	Rangan	Rubiaceae	Almost throughout the year	Used in the treatment diarrhea, nausea, cough, asthma, wounds and sores.
Sanyal 75	*Justicia adhatoda* L.	shrub	Vasak	Acanthaceae	August to October	Leaves; boiled leaf juice is taken to cure muscle pain.
Sanyal 114	*Kleinhovia hospita* L. **Plate I:k**	tree	Bola	Sterculiaceae	October to December	The bark and leaves used as hairwash for lice, while the juice of the leaves used as an eyewash.
Sanyal 5	*Kopsia fruiticosa* (Roxb.) A.DC. **Plate I:l**	shrub	Pink kopsia	Apocynaceae	March to July	Leaves have cholinergic effects and used to treat sore and syphilis.
Sanyal 105	*Lantana camara* L. **Plate II: a**	shrub	Saibani lata	Verbenaceae	March to June	Extracts of the fresh leaves used as an antipyretic, carminative and in the treatment of respiratory system infections.
Sanyal 12	*Livistona chinensis* (Jacq.) R. Br.	tree	Chinese fan palm	Arecaceae (Palmae)	Late spring to early summer	Fruits used as an anticancer agent. Leaves for making fans & sheaths for ropes.
Sanyal 96	*Madhuca longifolia* (Koenig)Macbride	tree	Mahua	Sapotaceae	July to August	Bark, leaves, fruits, flowers and seeds useful in the making of drugs. Barks useful in bleeding gums, ulcers and in diabetes. Leaves mixed with butter and applied on burns. Flowers useful in cough. Seeds useful in making soaps and in skin diseases.
Sanyal 2	*Mangifera indica* L.	tree	Am	Anachardiaceae	December to June	Leaves applied on burnsand scales; Decoction of bark treats haemorrhage from uterus.
Sanyal 37	*Michelia champaca* L.	tree	Swarna champa	Magnoliaceae	April to June	It yields good timber for furniture, panelling and bent wood work. The bark is used in medicine for the treatment of intermittent fevers. Oil extracted from the flowers, used as perfume.
Sanyal 111	*Mimusops elengi* L.	tree	Bakul	Sapotaceae	September to November	The bark is astringent and tonic and used in diarrhoea and dysentry. A decoction of bark used for gargle.
Sanyal 103	*Murraya koenigii* (L.) Spreng.	tree	Curry leaves	Rutaceae	April to June	Leaves are used as a condiment to flavour curries.
Sanyal 102	*Murraya paniculata* (L.) Jack	tree	kamini	Rutaceae	March to September	Leaves alleviates pain, removes toxic substances, antispasmodic, antagonizes muscular spasms, rheumatic pain, skin eczema, improves blood circulation.
Sanyal 95	*Musa paradisiaca* L.	tree	Kola	Musaceae	Throughout the year	Flowers in bronchitis, dysentery and on ulcers; cooked flowers given to diabetics; the astringent plant sap cures hysteria, epilepsy, leprosy, fevers, hemorrhages, acute dysentery and diarrhea, applied on hemorrhoids, insect and other stings and bites; young leaves are placed as poultices on burns and other skin afflictions; the astringent ashes of the unripe peel and leaves for dysentery and diarrhea, for treating malignant ulcers.
Sanyal 72	*Mussaenda erythrophylla* Schumach. & Thonn.	shrub	Ashanti blood	Rubiaceae	April to November	The root is an apetite stimulant. Bark and leaves have medicinal properties.
Sanyal 101	*Neolamarchia chinensis*(Roxb.) Bosser	tree	Kadam	Rubiaceae	July to August	Leaf is used for the treatment of diabetes.
Sanyal 7	*Nerium indicum* Mill.	tree	Karabi	Apocynaceae	April to October.	Paste of the root bark and leaves is used in ringworm and other skin diseases.
Sanyal 60	*Nyctanthes arbor-tristis* L.	tree	Shiuli	Oleaceae	August to October	Leaf decoction used for treatment of sciatica and arthritis.
Sanyal 73	*Pavetta indica* L.	shrub	Rangan, Kankara,	Rubiaceae	March to April	The bark, in decoction, is administered, especially to children, to correct visceral

						obstructions. Leaves used externally to alleviate the pains caused by haemorrhoids.
Sanyal 52	*Peltophorum pterocarpum* (DC.) Backer ex Heyne **Plate II: b**	tree	Radhachura	Caesalpiniaceae	March to June	Leaves an astringent for intestinal disorders, after pain at childbirth, sprains, bruises and as lotion for eye troubles, muscular pains and sores. Used for gargles and tooth powders.
Sanyal 116	*Petrea volubilis* Jacq.	Climbing shrub	Neelmoni lata/ Purple wreath	Verbenaceae	February to April	Leaves used for treating of wounds.
Sanyal 34	*Phyllanthus emblica* L.	tree	Amloki	Euphorbiaceae	March to May	Important dietary source of vitamin C, plant parts show antidiabetic, hypolipidemic, antibacterial, antioxidant, antiulcerogenic, hepatoprotective properties.
Sanyal 49	*Plumeria acutifolia* Ait. **Plate II: C**	tree	Kathchampa	Apocynaceae	May to September	Whole Plant used in the treatment of ulcers, herpes, scabies and seeds possess haemostatic properties.
Sanyal 64	*Polyalthia longifolia* (Sonn.) Thwait.	tree	Debdaru	Annonaceae	March to May	The bark is febrifuge and the inner bark yields a useful fibre.
Sanyal 113	*Pterospermum acerifolium* (L.) Willd.	tree	Muchkunda	Sterculiaceae	December to July	The flowers provide a number of medicinal uses. An effective tonic can be prepared, as well as used as a cure for inflammation, ulcers, blood problems, and even tumors.
Sanyal 99	*Ravenia spectabilis* Griseb. **Plate II: e**	shrub	Lemonia, Limonia, Pink Ravenia	Rutaceae	Throughout the year	Leaves have antimicrobial and cytotoxic activities
Sanyal 13	*Roystonea regia* (Kunth) Cook	tree	Bottle Palm	Arecaceae (Palmae)	March to May	Source of thatch. Seeds can be used for making trans free oil. Good source of Vitamin E.
Sanyal 19	*Saraca asoca* (Roxb.) de Wilde **Plate II: g**	tree	Asok	Caesalpiniaceae	January to May	The bark is used in uterine infections and as astringent in cases of internal haemorrhoids.
Sanyal 97	*Schleichera oleosa* (Lour.) Oken	tree	Kusum	Sapindaceae	March to May	Used as analgesic, antibiotic and against dysentery. *Kusum oil* used to cure itch, acne, burns, other skin troubles, rheumatism.
Sanyal 39	*Sida acuta* Burm. f. **Plate II: h**	shrub	Kureta/ Pila berela	Malvaceae	Throughout the year	Used as diuretic in rheumatic infections and demulcent in gonorrhea and chronic dysentery.
Sanyal 41	*Sida rhombifolia* L.	shrub	Peet berela	Malvaceae	Throughout the year	Leaves are used to relieve swelling, the fruits are used to relieve headache, the mucilage is used as an emollient, and the root is used to treat rheumatism
Sanyal 91	*Swietenia macrophylla* King	tree	big leaved Mahogany	Meliaceae	May to August	Seed used for blood sugar regulation and as an antioxidant.
Sanyal 8	*Tabernaemontana divaricata* (L.) R. Brown	tree	Tagor	Apocynaceae	April to September	Leaves used to treat various diseases like diarrhea, abdominal tumours, arthralgia, asthma, epilepsy, eye infections, fever,fractures, inflammation, leprosy, oedema, paralysis, piles, rheumatic pain, skin diseases, urinary disorders, strangury, toothache ulceration and vomiting.
Sanyal 17	*Tecoma stans* (L.) Juss. ex H,B & K.	tree		Bignoniaceae	February to November	The leaves and roots of the plant contain bioactive compounds, especially monoterpenes, which may have medicinal uses i.e diuretic and vermifuge.
Sanyal 92	*Terminalia catappa* L. **Plate II: j**	tree	Hijli / Jangli badam	Combretaceae	March to June	Leaves used to treat liver diseases.
Sanyal 9	*Thevetia peruviana* (Pers.) K. Schum.	tree	Kolke	Apocynaceae	March to August	Leaves reported to possess antifertility and/or spermicidal activity.
Sanyal 51	*Toona ciliata* T. Roem.	tree	Kalantas	Meliaceae	May to August	Bark and flowers as astringent, antiseptic and antispasmodic
Sanyal 106	*Trema orientalis* (L.) Blume	tree	charcoal-tree	Ulmaceae	December to April	The leaves and the bark are used to treat coughs, sore throats, asthma, bronchitis, gonorrhea, yellow fever, toothache, and as an antidote to general poisoning


(a)


(b)


(c)


(d)


(e)


(f)


(g)


(h)


(i)


(j)


(k)


(l)

Plate I : Some selected plants from the campus

(a) *Acalypha indica* L.(x1.5)
(b) *Amaranthus viridis* L. (x1.5)
(c) *Butea monosperma* (Lain.) Taubert (x2)
(d) *Cassia fistula* L.(x1.5)
(e) *Cassia siamea* Lamk. (x1.5)
(f) *Coccinia grandis* (L.) Voigt(x1.5)
(g) *Drypetes roxburghii* (Wall.) Hurus.(x2.5)
(h) *Hamelia patens* Jacq..(x1)
(i) *Ficus benghalensis* L.(x2.5)
(j) *Ficus glomerata* Roxb.(x4)
(k) *Kleinhovia hospita* L.(x4)
(l) *Kopsia fruiticosa* (Roxb.) A.DC.(x4)


(a)


(b)


(c)

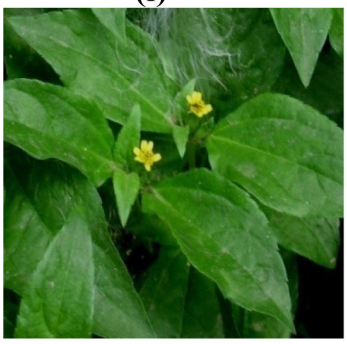

(d)


(e)


(f)


(g)


(h)


(i)


(j)


(k)

Plate II : Some selected plants from the campus

(a) *Lantana camara* L.(x1.5)
(b) *Peltophorum pterocarpum* (DC.) Back. ex Heyne (x1.5)
(c) *Plumeria acutifolia* Ait.(x2)
(d) *Rauvolfia serpentina* Benth. ex Kurz.(x1.5)
(e) *Ravenia spectabilis* Griseb.(x1.5)
(f) *Ruellia tuberosa* L.(x1.5)
(g *Saraca asoca* (Roxb.) de Wilde(x2.5)
(h) *Sida acuta* Burm. f..(x1)
(i) *Synedrella nodiflora* (L.) Gaertn.(x4)
(j) *Terminalia catappa* L.(x2.5)
(k) *Triumfetta rhomboidea* Jacq.(x4)
(l) *Cayratia trifolia* (L.) Domin (x4)

Discussion

It is evident from the present floristic survey that the vegetation of Bethune College Campus represents important medicinal and economic important plants. The diversity is enriched by the presence of some climbers like *Petrea volubilis*, *Cayratia trifolia*, *Tinospora cordifolia*, *Passiflora coccinea*, *Aristolochia indica*, etc. Among the floristic composition, trees are predominant which are represented by 57 species, and followed by 13 shrubs and 49 herbs. Out of 49 families of Angiosperms, the family Moraceae is most dominant (represented by 9 taxa) followed by Apocynaceae and Caesalpiniaceae (8 taxa each) and the other families with gradually lesser number of taxa. It obviously offers an interesting botanical study area and as such, the present authors feel to undertake further attempts to provide identification device of each and every plants in form of an artificial key which would be prepared in due course of time and would help in the conservation of the plants for maintaining plant biodiversity of this campus.

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