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STUDY OF ALIEN PLANTS SPECIES FROM BAREILLY COLLEGE, BAREILLY CAMPUS, U.P. (INDIA)

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ABSTRACT

Since ancient times, India's trade with other countries is more than old 6th BC. Food items like wheat, rice, vegetables etc. have also been imported from other countries along with the daily essentials in India. Time to time foreign nationals, Indian kings, leaders and common people have also directly or indirectly imported foreign plants into India and the number of foreign plants has increased continuously from ancient times to the present time. Nowadays, whether it is a garden or farms or an unusable ground, everywhere foreign plants have occupied. Our homes, institutions and plains are full of alien plants than Indian plants. All these exotic plants are flourishing in the Indian climate and are slowly ending or destroying the Indian plants. In the year 2019-20, a continuous survey was conducted to assess the encroachment of foreign plants in the Bareilly College, Bareilly campus. Bareilly College, Bareilly is the largest college in North Asia, established in the year 1837, whose campus is spread over an area of more than 110 acre. The college has 32 departments in different disciplines and each department also has its own garden. Every department was periodically surveyed at the time of this study. The study started from the session July 2019-20. The department's gardens were surveyed at least two times throughout the study period. During present research work total 124 plants species (Angiosperms and Gymnosperms) has been recorded from the Bareilly college campus related to the 108 genera and 54 families. Out of 124 recorded plants species from Bareilly College only 37 are native of India and rest are exotic. It shows the dominancy or encroachment of foreign plants on Indian land. This study proves 70% occupancy by the alien plants in Bareilly college campus and only 30% plants are from Indian origin.

Keywords - Foreign plants, Exotic, Encroachment, essentials, Angiosperms, Gymnosperms, origin.

Introduction

Since ancient times, India's trade with other countries is more than old 6th BC. Food items like wheat, rice and vegetables etc. have also been imported from other countries along with the daily essentials in India. Time to time foreign nationals, Indian kings, leaders and common people have also directly or indirectly imported foreign plants into India and the number of foreign plants has increased continuously from ancient times to the present time. Nowadays whether it is a garden or farms or an unusable ground, everywhere foreign plants have occupied. Our homes, institutions and plains are full of alien plants than Indian vegetation. All these exotic plants are flourishing in the Indian climate and are either slowly ending or destroying the Indian plants. In the year 2019-20, a continuous survey was conducted to assess the encroachment of foreign plants in the Bareilly College, Bareilly campus. Bareilly College, Bareilly is the largest college in North Asia, established in the year 1837, whose campus is spread over an area of more than 110 acre. The college has 32 departments in different disciplines and each department also has its own garden (Fig.1). Every department

was periodically surveyed at the time of this study. The study started from the session July 2019-20. The department's gardens were surveyed at least two times throughout the study period.

Material and Method

The present study was carried out during the 2018-2019 session. This analytical exercise of foreign or alien plants diversity of Bareilly College campus undertaken in very systematic manner from July 2019 to February 2020. All the departments of college visited frequently during this study in different seasons. The collected plants specimens have been arranged alphabetically along with their family and common names. Specimens were collected from their natural habitats in gardens and identified at the Department of Botany Bareilly College, Bareilly with the help of important and relevant literature, floras and books. The nativity of the plants has been confirmed from published literature, research papers, books and related websites like international plants name index (IPNI), encyclopedia of life (EOL) and the global biodiversity information facility.

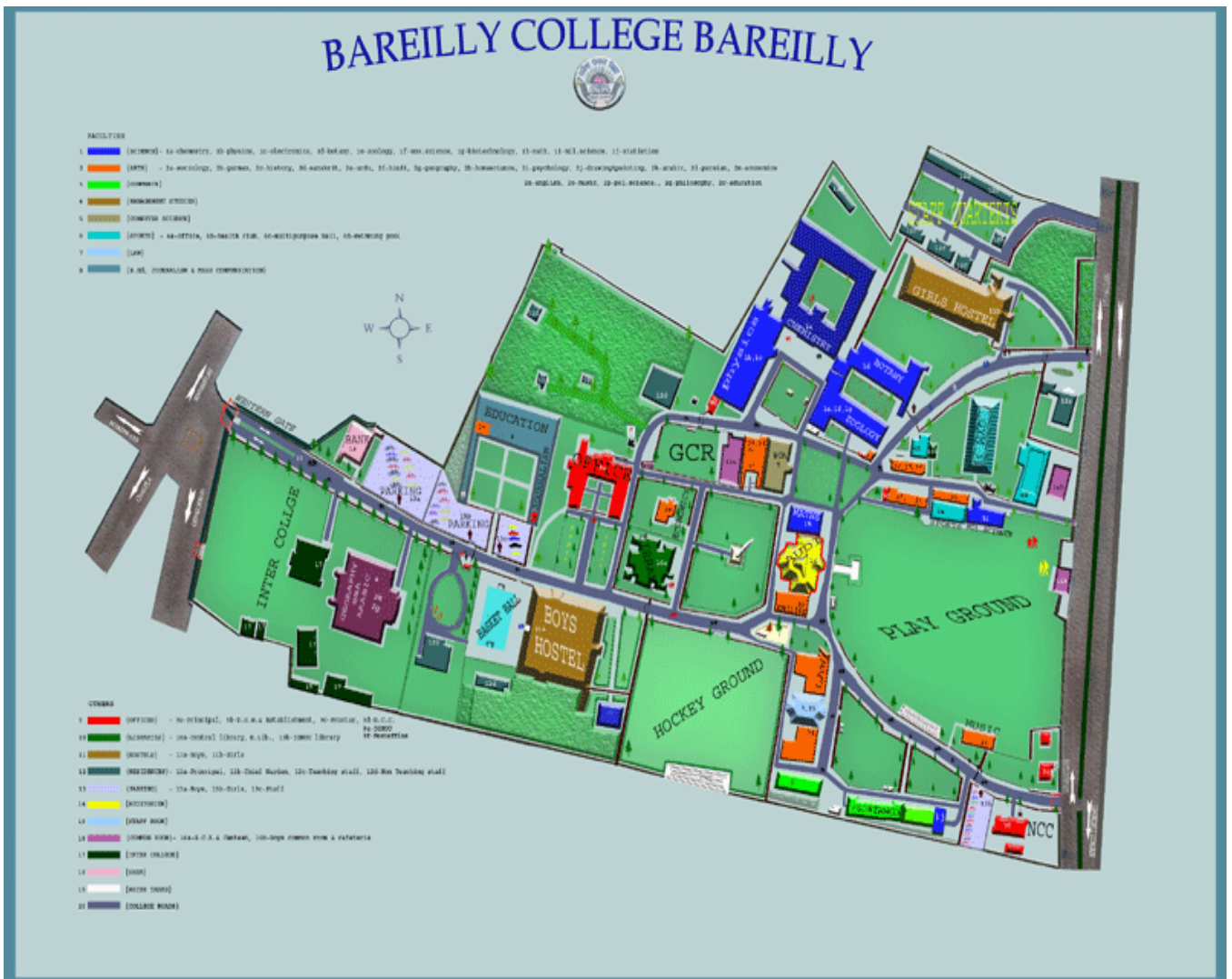


Fig.1 : Bareilly College, Bareilly U.P, India Map

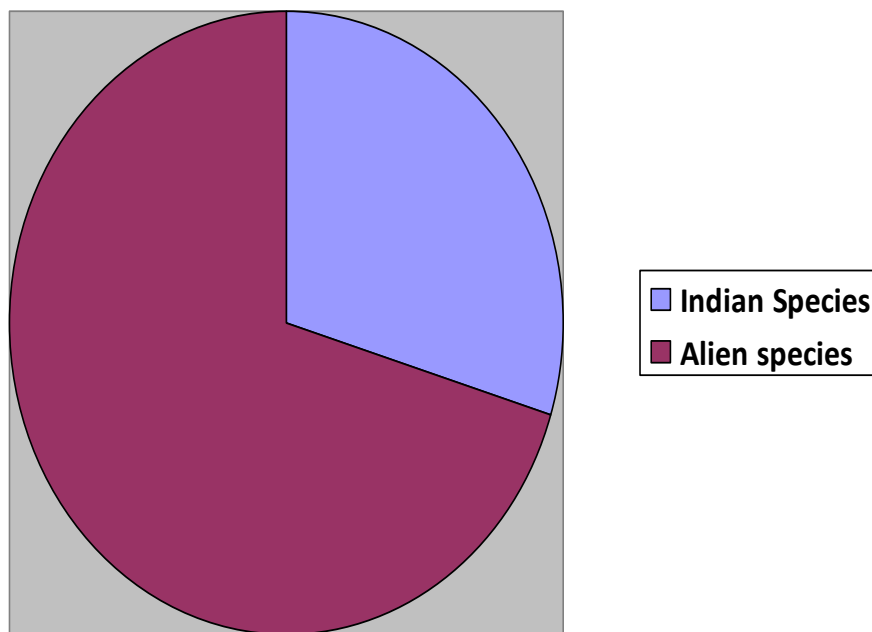


Fig. 2 : Chart showing dominance of Alien plants Species in Bareilly College, Bareilly Campus.

Table 1 : List of Reported Plants from Bareilly College, Bareilly campus during this study with their Botanical names, Local name, family and nativity.

Serial No.	Botanical Name	Local Name	Family	Nativity
1	<i>Deloenix regia</i>	Gul Mohar	Caesalpiniaceae	Madagascar Zone
2	<i>Caliandra haematocephala</i>	Red Powder Puff	Fabaceae	Tropical America
3	<i>Cassia fistula</i>	Bandarlathi, Amaltas	Caesalpinioideae	India
4	<i>Mitragayna parviflora</i>	Kadamb	Rubiaceae	India
5	<i>Callistemon rigidus</i>	Bottle brush	Myrtaceae	Australia
6	<i>Roystonea regia</i>	Royal palm	Aracaceae	Cuba
7	<i>Hamelia patens</i>	Fire bush	Rubiaceae	South America
8	<i>Lagerstroemia indica</i>	Pride of India	Lythraceae	India
9	<i>Rosa indica</i>	Gulab	Rosaceae	Asia
10	<i>Washingtonia robusta</i>	Fan palm	Arecaceae	Mexico
11	<i>Tabernaemontana divaricata</i>	Chandni	Apocyanacea	India
12	<i>Araucaria cunninghamii</i>	Hoop pine	Arucariaceae	South America
13	<i>Plumaria alba</i>	Son Champa	Apocyanaceae	West Indies
14	<i>Muraya paniculata</i>	Kamini	Rutaceae	India
15	<i>Hibiscus rosa sinensis</i>	Gudhal	Malvaceae	China
16	<i>Thevetia peruviana</i>	Kaner	Apocyanaceae	West Indies
17	<i>Thuja orientalis</i>	Morpankhi	Cupressaceae	China
18	<i>Livistona chinensis</i>	Fountain palm	Arecaceae	China
29	<i>Jacaranda mimosifolia</i>	Neeli gulmohur	Bignoniaceae	Argentina and Brazil
20	<i>Ixora chinensis</i>	Chinese Ixora	Rubiaceae	Asia
21	<i>Nyctanthes arbotristis</i>	Harsingar	Nyctaginaceae	India
22	<i>Cycas rumphii</i>	Queen Sago	Cycadaceae	Indonesia
23	<i>Cycas revoluta</i>	Sago Palm	Cycadaceae	China
24	<i>Codium vareigatum</i>	Garden croton	Euphorbiaceae	Java to Australia
25	<i>Archontophoenix alexandrae</i>	King Palm	Arecaceae	Australia
26	<i>Bauhinia variegata</i>	Kachnar	Caesalpinioideae	India
27	<i>Senna siamea</i>	Kasood	Caesalpinioideae	India
28	<i>Grevillea robusta</i>	Silky Oak	Proteaceae	Australia
29	<i>Laurus nobilis</i>	Sweet bay	Lauraceae	Mediterranean region
30	<i>Aucuba japonica</i>	Gold Dust plant	Garryaceae	Japan
31	<i>Rohdea japonica</i>	Sacred lilly	Asparagaceae	Japan
32	<i>Mussaenda philippica</i>	Queen sirikit	Rubiaceae	Philippines
33	<i>Bassia scoparia</i>	Summer cypress	Chenopodiaceae	Eurasia
34	<i>Hylocereus undatus</i>	Lady of the Night	Cactaceae	Mexico and American tropics
35	<i>Tradescantia spathacea</i>	Nargis	Commelinaceae	Mexico
36	<i>Zamia floridana</i>	Coontie	Zamiaceae	Florida
37	<i>Podocarpus neriifolius</i>	Buddhist pine	Podocarpaceae	Southern Gondwana
38	<i>Elaeocarpus ganitrus</i>	Rudraksh	Elaeocarpaceae	India
39	<i>Tradescantia pallida</i>	Puple queen	Commelinaceae	North America
40	<i>Cuphea hookeriana</i>	Cigar plant	Lythraceae	Mexico
41	<i>Asparagus officinalis</i>	Satavar	Asparagaceae	North Africa, Western Asia
42	<i>Ficus microcarpa</i>	Curtain fig	Moraceae	Asia
43	<i>Ficus benamina</i>	Weeping fig	Moraceae	Asia and Australia
44	<i>Acacia auriculiformis</i>	Australian Babul	Fabaceae	Australia
45	<i>Ficus altissima</i>	Fig tree	Moraceae	Asia
46	<i>Bombax cebia</i>	Semal	Bombacaceae	India
47	<i>Nerium oleander</i>	Kaner	Apocyanaceae	Mediterranean region
48	<i>Acer buergerianum</i>	Trident Maple	Sapindaceae	East China
49	<i>Alstonia scholaris</i>	Chitvan	Apocyanaceae	Indo-Malayan region
50	<i>Bougainvillea spectabilis</i>	Baganvilas	Nyctaginaceae	Brazil
51	<i>Euphorbia cotinifolia</i>	Spurge	Euphorbiaceae	Mexico
52	<i>Monstera deliciosa</i>	Cheese plant	Araceae	Mexico
53	<i>Jatropha podagrica</i>	Buddha belly plant	Euphorbiaceae	Panama
54	<i>Syngonium podophyllum</i>	Goose foot	Araceae	America

55	<i>Chrysanthemum indicum</i>	chandramallika	Asteraceae	Asia
56	<i>Sansevieria cylindrica</i>	Mother- in -law tongue	Asparagaceae	South tropical Africa
57	<i>Sansevieria trifasciata</i>	Snake plant	Asparagaceae	South tropical Africa
58	<i>Homalocladium platycladum</i>	Ribbon plant	Polygonaceae	Solomon Islands
59	<i>Vinca rosea</i>	Sada vahar	Apocyanaceae	Madagascar
60	<i>Euphorbia tithymaloides</i>	Red bird flower	Euphorbiaceae	America, Asia
61	<i>Dypsis lutescens</i>	Butterfly palm	Arecaceae	Madagascar
62	<i>Magnolia grandiflora</i>	Bari champa	Magnoliaceae	North America
63	<i>Mimosa pudica</i>	Laj vanti	Fabaceae	South central America
64	<i>Cestrum nocturnum</i>	Rat – Ki- Rani	Solanaceae	West Indies
65	<i>Euphorbia pulcherrima</i>	Poinsettia	Euphorbiaceae	Central America
66	<i>Ficus benghalensis</i>	Bargad	Moraceae	India
67	<i>Lantana camara</i>	Badhara	Verbenaceae	Tropical America
68	<i>Jasminum sambac</i>	Bela	Oleaceae	Arabia
69	<i>Malaviscus arboreus</i>	Sleeping Mallow	Malvaceae	Mexico
70	<i>Mimusops elengi</i>	Maulshri	Sapotaceae	India
71	<i>Peltophorum pterocarpum</i>	Arun jyoti	Caesalpiniaceae	Sri Lanka
72	<i>Punica granatum</i>	Anar	Punicaceae	Iran
73	<i>Tecoma stans</i>	Chandaprabha	Bignoniaceae	Tropical America
74	<i>Terminalia arjuna</i>	Arjun	Combretaceae	India
75	<i>Polyalthia longifolia</i>	False ashoka	Annonaceae	India
76	<i>Mangifera indica</i>	Mango	Anacardiaceae	India
77	<i>Carrisa carandas</i>	karonda	Apocyanaceae	India
78	<i>Calotropis procera</i>	Aak	Apocyanaceae	North Africa
79	<i>Cordia dichotoma</i>	Lasora	Boraginaceae	Cuba, West Indies, Florida
80	<i>Tamrindus indica</i>	Imli	Caesalpiniaceae	Tropical Africa
81	<i>Combretum indicum</i>	Madhu malti	Combretaceae	Burma, Malaya
82	<i>Shorea robusta</i>	Sal	Dipterocarpaceae	South Asia
83	<i>Ricinus communis</i>	Arandi	Euphorbiaceae	Africa
84	<i>Ocimum sanctum</i>	Tulsi	Lamiaceae	India
85	<i>Azadirchta indica</i>	Neem	Meliaceae	Persia and Asia Minor
86	<i>Lawsonia inermis</i>	Hina	Lytharaceae	Africa and Asia
87	<i>Melia azedarch</i>	Bakain	Meliaceae	India
88	<i>Tinospora cordifolia</i>	Giloy	Menispermaceae	India
89	<i>Pithecellobium dulce</i>	Jangal jalebi	Mimosaceae	Mexico
90	<i>Artocarpus hetrophyllous</i>	Kathal	Moraceae	India
91	<i>Ficus elastica</i>	Rubber plant	Moraceae	South Asia
92	<i>Ficus racemosa</i>	Gular	Moraceae	Australia
93	<i>Ficus religiosa</i>	Pipal	Moraceae	India
94	<i>Prunus persica</i>	Aru	Rosaceae	China
95	<i>Ixora coccinea</i>	Jungle flame	Rubiaceae	South India
96	<i>Mussaenda luteola</i>	Miniature white flag	Rubiaceae	Africa
97	<i>Aegle marmelos</i>	Bel	Rutaceae	India
98	<i>Scoparia dulcis</i>	Ghoda tulsi	Scrophulariaceae	Jamaica
99	<i>Holoptelea integrifolia</i>	Chil bil	Ulmaceae	India
100	<i>Duranta repens</i>	Sky flower	Verbenaceae	South America and West indies
101	<i>Tectona grandis</i>	Sagaun	Verbenaceae	India
102	<i>Phoenix sylvestris</i>	Indian date	Arecaceae	South Pakistan
103	<i>Asparagus racemosus</i>	Shatavar	Asparagaceae	India
104	<i>Ruscus aculeatus</i>	Mouse thorn	Asparagaceae	Maderia Islands
105	<i>Musa paradisiaca</i>	Banana	Musaceae	South western pacific
106	<i>Cupressus sempervirens</i>	Morpankhi	Cupressaceae	Mediterranean region
107	<i>Pinus roxburghii</i>	Cheer	Pinaceae	Himalaya
108	<i>Jatropha curcus</i>	Rattan jot	Euphorbiaceae	Mexico
109	<i>Butea monosperma</i>	Dhak	Fabaceae	India
110	<i>Pongamia pinnata</i>	Karanj	Fabaceae	India
111	<i>Morus alba</i>	Sahtoot	Moraceae	China
112	<i>Moringa oleifera</i>	Moringa	Moringaceae	India

113	<i>Eucalyptus lanceolatus</i>	Eucalyptus	Myrtaceae	Australia
114	<i>Psidium guajava</i>	Amrud	Myrtaceae	Tropical America
115	<i>Syzygium cumini</i>	Jamun	Myrtaceae	India
116	<i>Mirabilis jalapa</i>	Gulabans	Nyctaginaceae	America
117	<i>Averrhoa carambola</i>	Kamrakh	Oxalidaceae	Indonesia
118	<i>Putranjiva roxburghii</i>	Putranjiva	Euphorbiaceae	India
119	<i>Leucas aspera</i>	Gopha	Lamiaceae	India
120	<i>Cycas circinalis</i>	Sago palm	Cycadaceae	South India
121	<i>Opuntia dillenii</i>	Prickly pear	Cacteaceae	U.S.A
122	<i>Erythrina variegata</i>	Sunshine tree	Fabaceae	India
123	<i>Madhuca indica</i>	Mahua	Sapotaceae	India
124	<i>Kigelia pinnata</i>	Balam kheera	Bignoniaceae	Africa

Result and Discussion

During present research work total 124 plants species (Angiosperms and Gymnosperms) has been recorded from the Bareilly College campus related to the 108 genera and 54 families. Out of 124 recorded plants species from Bareilly College campus only 37 are native of India and rest 87 from the foreign countries. It shows the dominancy or encroachment of foreign plants on Indian land or in Indian climate. This study proves 70% occupancy by the alien plants in Bareilly College campus and only 30% plants are from Indian origin (Fig. 2). This is not a good sign for our environment and land. If this situation will prevalent then extinction of Indian plants would start due to the dominancy of foreign plants and foreign plants would grow and thrive in Indian climate. To prevent Indian plants from extinction under such circumstances, maximum Indian origin plants should be planted and avoided the bringing of foreign plants inside our campuses, homes and gardens.

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