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## Study of angiospermic wall flora of city Janjgir-Champa district, Chhattisgarh

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### Abstract

69 plants species from 59 genera of 28 families formed the angiospermic wall flora, with only 3 monocotyledonous families and 25 dicotyledonous families. Angiospermic wall flora of the city of Janjgir-Champa district was mainly composed of Asteraceae, Poaceae, and Malvaceae families. Majority of non-woody wall flora appears during the rainy and winter season. Janjgir-Champa district, Chhattisgarh, had the most common wall flora among the woody perennials *Azadirachta indica*, *Ficus benghalensis*, and *Ficus religiosa*.

**Keywords:** Wall flora, seasonal appearance, woody perennials, herbaceous habit, undershrub

### 1. Introduction

Walls are artificial homes built by humans. Plant species are generally supported in their growth and development by walls with cracks and crevices. The wall plants are the result of spontaneous colonization unassisted by human action (Singh, 2011) <sup>[1]</sup>. Several studies have been conducted to analyze the floristic composition of the wall habitats in India and abroad. Walls may be generally classified into five types which are (01) brick cement wall, (02) stone cement wall, (03) brick mud wall, (04) stone mud wall and (05) mud wall. In the brick cement wall and stone cement wall the cementing material used is cement while in brick mud wall and stone mud wall the cementing material used is mud. The mud wall is purely made up of mud (Singh, 2011 and Varshney, 1967) <sup>[2, 3]</sup>. All the five types of walls are available at city Janjgir-Champa district. This city has several old constructions with walls developing cracks and crevices with passage of time. The cracks and crevices in the wall provide anchorage to the plant roots thus supporting the growth of the plants (Varshney, 1971, Singh *et al.* 1971 and Sahu, 1984) <sup>[4, 5, 6]</sup>. The objectives of the study were to analyze the seasonal appearance of angiospermic flora on the walls of all the present constructions of the city Janjgir-Champa district, Chhattisgarh.

### 2. Materials and Methods

The Janjgir-Champa district is bounded by East longitudes of 82°17' to 83°19' and by North Latitudes of 21°40' to 22°15'30" having geographical area of 4467 sq. km. and is surrounded by Raigarh and Raipur district in South, Bilaspur district in west, Korba and Raigarh district in North and East respectively. The district headquarters Janjgir and Champa - the twin towns are well connected with roads as well as rail. National highway No. 200 passes through both the towns. Janjgir is 180 km from Raipur, 75 km from Bilaspur and 94 km from Raigarh. Both Janjgir and Champa are connected with Howrah and Mumbai by SECR Mumbai- Nagpur - Howrah main line. There is a good network of State Highways in the district.

Between July 2022 and July 2023, a thorough field survey was carried out to document the angiospermic flora that was growing on the walls in various locations throughout the city. Every two months there was one visit. As a result, a year's worth of field observations required a total of six visits. In order to find angiospermic wall flora, visits were conducted to every practically feasible location during the observation period. The primary boundary walls encircling the government staff quarters, schools, colleges, hospitals, central jail, auto garages, Janjgir-Champa district old building, etc. were among the walls that were examined for flora. The identification of plant species was done using taxonomic literatures and with the help of experts (Singh, 2011 and Varshney, 1971) <sup>[1, 4]</sup>.

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### 3. Result and Discussion

Table 01 shows the angiospermic wall flora of the Janjgir-Champa district of the city, together with their habits and seasonal appearance. Based on this study, it is evident that 69 plant species from 59 genera and 28 families comprised the angiospermic wall flora, of which 25 belonged to dicotyledonous families and only 3 to monocotyledonous families. The highest number of species found in the angiospermic flora was 11 (15.94%), which is related to the family Asteraceae; 07 (10.14%) is related to the family Poaceae; and 05 (7.25%) is related to the family Malvaceae. According to the study, the three most prevalent families of angiospermic wall flora in the Janjgir-Champa district of the city are Asteraceae, Poaceae, and Amaranthaceae. It was also observed that members of families Asteraceae, Fabaceae, Lamiaceae and Acanthaceae colonize the walls in winter season whereas the members of families Poaceae, Cyperaceae, Euphorbiaceae and Malvaceae colonize the walls

in rainy season. Contrary to these members of family Amaranthaceae colonize the walls in summer season. Based on habit, of the total plant species observed 56(81.15%) were represented by herbs, 05(7.25%) by trees, 06(8.70%) by Undershrub and only 02(2.90%) by shrubs (Figure 01). Thus it becomes clear that plants of herbaceous habits are the chief representatives of the angiospermic wall flora of city Janjgir-Champa district.

On the walls of the city of Janjgir-Champa district, 28 (40.57%), 20 (28.98%), and 5 (7.25%) plant species were recorded during the rainy, winter, and summer seasons, respectively, in the study. Nonetheless, throughout the year, 09 (13.04%) plant species were identified. throughout addition, 07 (10.14%) plant species were found throughout both the winter and the rainy seasons (Figure 02). The study so clearly shows that the majority of the angiospermic flora colonizes the walls in the winter and during rainy seasons.



Fig 1: Graphics analysis of angiospermic wall flora of Janjgir-Champa district city

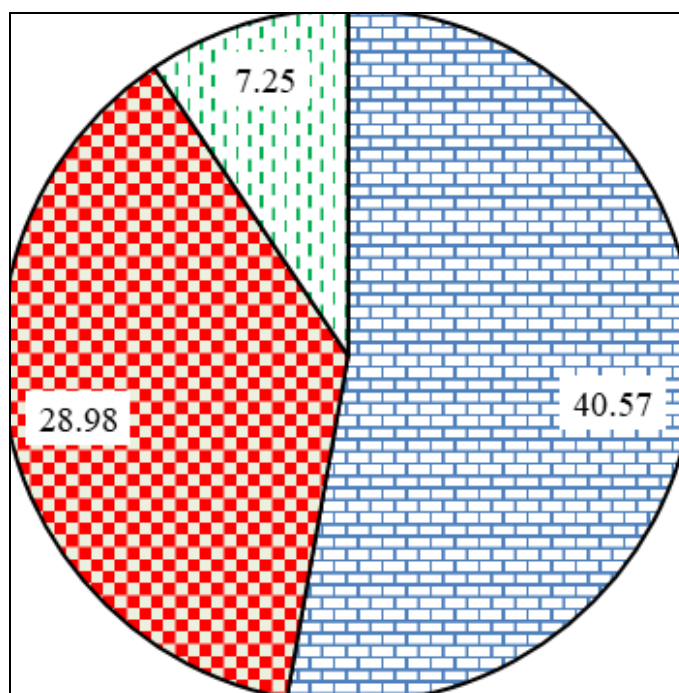


Fig 2: Graphics analysis of angiospermic wall flora of different seasons

**Table 1:** List of angiospermic wall flora of city Janjgir-Champa district (C.G.) India

S. No.	Plant species	Family	Habit	Seasonal appearance
1.	<i>Abutilon indicum</i>	Malvaceae	Herb	Rainy
2.	<i>Acalypha indica</i>	Euphorbiaceae	Herb	Rainy
3.	<i>Achyranthes aspera</i>	Amaranthaceae	Herb	Whole year
4.	<i>Ageratum conyzoides</i>	Asteraceae	Herb	Summer
6.	<i>Alternanthera sessilis</i>	Amaranthaceae	Herb	Rainy & Winter
8.	<i>Amaranthus polygamus</i>	Amaranthaceae	Herb	Summer
7.	<i>Amaranthus spinosus</i>	Amaranthaceae	Herb	Rainy & Winter
5.	<i>Anagallis arvensis</i>	Primulaceae	Herb	Winter
9.	<i>Argemone mexicana</i>	Papavaraceae	Herb	Winter
11.	<i>Azadirachta indica</i>	Meliaceae	Tree	Whole year
12.	<i>Blumea aromatica</i>	Asteraceae	Herb	Rainy
13.	<i>Blumea oxyodonta</i>	Asteraceae	Herb	Rainy
15.	<i>Boerhavia diffusa</i>	Nyctaginaceae	Herb	Rainy & Winter
20.	<i>Brachiaria ramosa</i>	Poaceae	Herb	Rainy
10.	<i>Calotropis procera</i>	Asclepiadaceae	Shrub	Whole year
18.	<i>Cassia tora</i>	Fabaceae	Herb	Rainy
14.	<i>Chenopodium album</i>	Chenopodiaceae	Herb	Winter
16.	<i>Cleome viscosa</i>	Cappardaceae	Herb	Rainy
17.	<i>Coccinia grandis</i>	Cucurbitaceae	Herb	Winter
19.	<i>Commelina benghalensis</i>	Commelinaceae	Herb	Rainy
21.	<i>Cynodon dactylon</i>	Poaceae	Herb	Whole year
22.	<i>Cyperus difformis</i>	Cyperaceae	Herb	Rainy
23.	<i>Cyperus iria</i>	Cyperaceae	Herb	Rainy
24.	<i>Datura innoxia</i>	Solanaceae	Herb	Rainy
25.	<i>Datura metel</i>	Solanaceae	Undershrub	Rainy
26.	<i>Dichanthium annulatum</i>	Poaceae	Herb	Rainy
27.	<i>Digitaria marginata</i>	Poaceae	Herb	Rainy
28.	<i>Eclipta alba</i>	Asteraceae	Herb	Rainy
29.	<i>Eleusine indica</i>	Poaceae	Herb	Summer
30.	<i>Eragrostis tenella</i>	Poaceae	Herb	Rainy
31.	<i>Euphorbia heterophylla</i>	Euphorbiaceae	Herb	Rainy & Winter
32.	<i>Euphorbia hirta</i>	Euphorbiaceae	Herb	Rainy & Winter
33.	<i>Evolvulus nummularius</i>	Convolvulaceae	Herb	Rainy
34.	<i>Ficus benghalensis</i>	Moraceae	Tree	Whole year
35.	<i>Ficus glomerata</i>	Moraceae	Tree	Whole year
36.	<i>Ficus racemosa</i>	Moraceae	Tree	Whole year
37.	<i>Ficus religiosa</i>	Moraceae	Tree	Whole year
38.	<i>Heliotropium indicum</i>	Boraginaceae	Herb	Winter
39.	<i>Justicia diffusa</i>	Acanthaceae	Herb	Winter
40.	<i>Lantana camara</i>	Verbenaceae	Shrub	Whole year
41.	<i>Launaea nudicaulis</i>	Asteraceae	Herb	Winter
42.	<i>Lindenbergia indica</i>	Scrophulariaceae	Herb	Rainy
43.	<i>Lindernia ciliata</i>	Scrophulariaceae	Herb	Rainy
44.	<i>Malvastrum tricuspidatum</i>	Malvaceae	Undershrub	Rainy
45.	<i>Melilotus alba</i>	Fabaceae	Herb	Winter
46.	<i>Mimosa pudica</i>	Fabaceae	Undershrub	Winter
47.	<i>Nepeta ruderalis</i>	Lamiaceae	Herb	Winter
48.	<i>Nicotiana plumbaginifolia</i>	Solanaceae	Herb	Winter
49.	<i>Oldenlandia corymbosa</i>	Rubiaceae	Herb	Winter
50.	<i>Oldenlandia dichotoma</i>	Rubiaceae	Herb	Winter
52.	<i>Oxalis corniculata</i>	Oxalidaceae	Herb	Rainy & Winter
54.	<i>Panicum psilopodium</i>	Poaceae	Herb	Rainy
55.	<i>Parthenium hysterophorus</i>	Asteraceae	Herb	Rainy
57.	<i>Peristrophe bicalyculata</i>	Acanthaceae	Herb	Winter
58.	<i>Phyllanthus niruri</i>	Euphorbiaceae	Herb	Rainy & Winter
56.	<i>Rumex nigricans</i>	Polygonaceae	Herb	Rainy
53.	<i>Rungia parviflora</i>	Acanthaceae	Herb	Winter
51.	<i>Salvia plebeia</i>	Lamiaceae	Herb	Winter
59.	<i>Scoparia dulcis</i>	Scrophulariaceae	Herb	Summer
60.	<i>Sida acuta</i>	Malvaceae	Undershrub	Rainy
61.	<i>Sida rhombifolia</i>	Malvaceae	Undershrub	Rainy
62.	<i>Solanum nigrum</i>	Solanaceae	Herb	Winter
63.	<i>Sonchus arvensis</i>	Asteraceae	Herb	Winter
64.	<i>Spilanthes acmella</i>	Asteraceae	Herb	Winter
66.	<i>Trianthema portulacastrum</i>	Aizoaceae	Herb	Rainy
65.	<i>Tridax procumbens</i>	Asteraceae	Herb	Summer
67.	<i>Urena lobata</i>	Malvaceae	Undershrub	Rainy

68.	<i>Vernonia cinerea</i>	Asteraceae	Herb	Winter
69.	<i>Xanthium strumarium</i>	Asteraceae	Herb	Rainy

#### 4. Conclusion

It can be concluded from the study that the angiospermic flora on the walls of city Janjgir-Champa district is dominated by herbaceous angiosperms. Most of the flora on walls appears during the rainy and winter seasons of the year. The Asteraceae, Poaceae and Malvaceae families represented exclusively by herbaceous species dominate the angiospermic wall floristic composition of city Janjgir-Champa district.

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