

PHYTOGEOGRAPHICAL DISTRIBUTION OF *Butea monosperma* IN HISSAR DISTRICT, HARYANA

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1.1. INTRODUCTION :

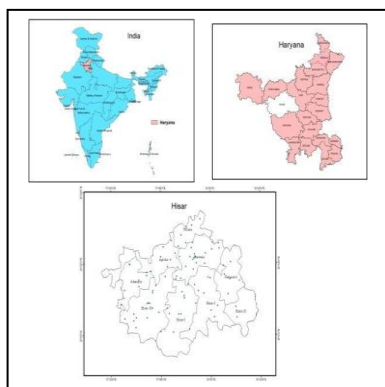
The present paper discusses the potentiality of natural vegetation i.e. *Butea monosperma*. The area under investigation i.e. Hissar district, popularly known as historical, geographical and cultural zone of Haryana state, India. Besides this zone has unique combination of beautiful ecosystems. The zone has a great variety of climates biotic and edaphic conditions, physiography and diversity of natural vegetations which has on a wide range of natural ecosystem.

Actually, there is no plant species on this planet which may be termed as useless indeed, whether it is another matter that mankind have acquire knowledge of the uses or applications of the particular plant species. One can visualize very well the uncountable uses at the part of applied aspect of plant kingdom which left no activity of daily life of human beings requirements without any sort of their impact of usefulness by quantitative or qualitative point of view. The green cover on the earth surface whatever in the form of vegetation or forest wealth is an essential component as well as part and portion of the surrounding complex of the nature of which man is an important biological elements. Hence, generally the plant species whose uses are known to the human beings in applied sense for the mankind welfare as well as for domestic animals are termed as useful plant species - at the part of his knowledge.

1.2. INTRODUCTION OF THE RESEARCH AREA :

Location Map of Hisar District

Hissar district of Haryana was founded by Feroz Shah Tuglak in the year 1354 it was made as an advance fort with four gaint gates popularly known as Nagori gate, Mori gate, Delhi gate and Talaqui gate. It is the oldest district carves at the time of joint Punjab.



District Hissar is known as a city of steel as one of the biggest producer of stainless steel i.e. M/S Jindal Strips Ltd. exists in the district. It is well known as agriculture. Products like cotton, rice, wheat and mustard. It has high potentiality of agro based industries.

The study area lies in the central part of Hisar district and consists of Hisar tehsil (Latitudinal Extent: 28°53' 45' ' N-29°26' 27' ' N Longitudinal Extent: 75°31' 57' ' E - 75°54' 42' ' E) . Physiographically, Hisar plain covers the major part of Hisar tehsil. Because of the absence of natural drainage, the plain appeared as fertile with the introduction of irrigation through the development of extensive canal network as the branches of the Western Yamuna Canal and the Bhakra Canal. Small sized sand dunes are found in the tehsil in irregular interval as the district is bounded by Desert of Haryana in the south-western part. Being land-locked and located in the semi-arid climatic condition, it is characterized by dry air, irregular rainfall (average annual rainfall

around 450 mm, mostly during July and August) and drastic disparity of temperature. With the onset of winter season (from mid-November to mid-March) maximum daytime temperature ranges from 1.5 to 4 °C because of the passing western disturbances whereas during the summer season (from mid-March to end of June), the range is from 40 to 46 °C and hot westerly winds (looh) affect the region.

The present study area is agriculture dominated and minimal area is under forest cover especially tropical desert thorn species mostly of xerophytes. According to the Census 2011, the total population of Hisar tehsil is 1,069,309. Out of the total population, 4,23,945 (39.6 %) lives in urban areas. Considering the decadal change in population, it has been observed that Hisar tehsil has highest decadal growth of 14.1 %. Compared to the other tehsils, Hisar tehsil has experienced highest decadal growth (37.98 %) in the urban area also. The area is dominated by large, medium and small-scale industrial units, even the house-hold industry. Transport and communication system are well developed in this region in the form of National Highways (NH10; NH 65) and the Broad-Gauge Railway Lines (Rewari – Bhiwani-Hisar-Sirsa and Hisar Jakhalmadi).

1.3. REVIEW OF LITERATURE :

A significant, very authentic taxonomic work was contributed in the field of botany by Bhandari with the publication of a book Flora of the Indian desert (1990). From the field of applied phytogeography point of view. Charan gave a valuable contribution with a publication of a book on Plant Geography (1992). Bhattacharjee (2000) gave a very valuable authentic contribution through the publication of a book on Handbook of Medicinal Plants in which he presented the medicinal plants of Indian Sub-continental back ground with their coloured photographs also and Sharma (2007) gave a very valuable authentic contribution through the publication of a book on Medical Plant Geography.

1.4. OBJECTIVES :

As the nature of the research work, it becomes the prime most duty of a phytogeographer to trace out to identify the plants and than their geographic interpretation from their origin point of view.

1.5. HYPOTHESIS :

Naturally, the present study will cover the present position of phytogeographic pattern of spatial distribution of applied plant species, so a phytogeographer can propose their allocation of sites of coinciding habitats from their conservation point of view for the welfare of future generation of the area under study.

we can conserve those plant species which have their applied values for the welfare of human beings inhabiting in that particular area or the area under study.

1.6. METHODOLOGY :

The present study has been substantiated by extensive field work. The essential data have been collected from a wide range of sources. Additionally, data from reports, maps, pamphlets, research papers, books, monographs, soil survey data, forest survey data from published and unpublished materials have been collected from different agencies. After examining the data related to physical (climate, soil, land forms and water) biological (flora and fauna) and social (population dynamics, economic activities land use and productivity) indicators, a few survey sites were located. The sites were visited during field survey.

To illustrate the frequency of distribution of particular plant species the prescribed method of Raunkier's will be exercised to show whether the particular plant species is rare, frequent, common or abundant for the area under investigation. The nature of habitats and

the eco-climatic conditions will be dealt as a part and portion of the study to support the phyto-climatic account of the research problem for the area under study.

1.7. OBSERVATIONS :

BOTANICAL NAME : *Butea monosperma*

LOCAL NAME : Palas, Falas, Dhak (**Photoplate**).

(A) VEGETATIONAL CHARACTERISTICS :

It the world of Forest, it is popular by name ' Flame of the Forest' . The plant belongs to the family - *Leguminosae*. Mostly, it is observed as suitable ecoclimatic conditions and nature of habit, it may be observed as a tall as well as large tree. From life - forms classification point of view, it belongs, to the ' Micro-phanerophyte' group i.e. under the group of ' Trees' from vegetational group point of view. It is deciduous by nature, untidy in growth and ragged in shape, with twisted trunk. Leaves are rough in texture and 10 to 15 cm. long and broad, by thus, from leaf - class classification point of view, the tree falls in the class of ' Macrophylls' . In February - May the tree becomes leafless and in blooming stage, flowers are bright flaming scarlet orange with black calyces. It' s fruit' s are in the form of pods, ripe pods are light and found scattered far and wide by hot winds in the month of June. It' s pods have deep red, thin button shaped seeds, generally of the size 2 cm. in diameter.



(B) ECO-CLIMATIC CONDITIONS AND HABITAT :

Although the tree can be grown in types of soil and also in low rainfall area, it' s plants and hardy and frost resistant but in nature for the area under study, the trees are generally observed in stony and rocky areas i.e. hilly habitat, respectively. The tree is reported with stands in frost and drought very well and also does well in saline soils (Bhattacharjee, 2000) but neither I have observed any tree of *Butea monosperma* in saline soil areas of Hissar district nor in any other habitat except stony and rocky, respectively. It requires good rainfall conditions i.e. atleast more than 40 cm. annual average to 150 cm., respectively. The plants propagated by seeds and also by roof suckers. Viability of the seed is poor. The association of *Butea spp.* requires at least 30 percent relative humidity in the atmosphere.

(C) MEDICINAL APPLIED ASPECT :

The tree has good medicinal uses for the cure of some diseases. This is another herbal drug of choice for them for the eradication of intestinal worms and which also improve the function of stomach and intestine. They also use it in other combination to treat sexual impotency. Some of them indicated that it can restore the proper menstrual cycle in women and also prevent pregnancy if taken regularly.

The flowers (popularly called as ' Kesula') and leaves this tree species are used against boils and pimples, and are also prescribed to take internally in flatulent colic, worms and piles. Red coloured gum, root, bark and seeds of the tree also possess medicinal properties. Gum is contains tannins. The flowers and seeds are mixed in a diarrhoea and used as wormicide against tapeworms and ring worms. When several leaves are stiched together, it serves as dinning plates and the leaves are also used in beedi factories. Lack-insects can be reared on the twings. Bark flowers yield a yellow die and are used in textiles. Bark is used for tanning.

(D) PHYTO-GEOGRAPHICAL DISTRIBUTION :

A. At Global Level :

The tree species is native to Indo-Malayan region by including Ceylon. In India it is mostly observed in states of central and western India, it grows as the wild in West Bengal, Bihar and also cultivated in gardens and road side plantation. In Haryana, the tree has dominant distribution in Hissar region, and throughout the state but on stony and rocky habitat.

B. At Regional Level :

The phytogeographic pattern of spatial distribution for *Butea monosperma* of Hisar Region than it is quite obvious that the tree and it' s association with Salar and Kheri is restricted up to south eastern part and portion of the area under study. It is all due to the stony and rocky habitat has it' s distribution up to south eastern part, respectively. Two third part and portion of northern and western the Region is free from it' s occurrence, respectively.

There are one large patche of *Butea monosperma* frequent phytogeographic pattern of spatial distribution in Hisar tehsil, Tohana tehsil, through out one-third part of the Region located in south-eastern portion has rare phytogeographic pattern of distribution. It shows frequent to common occurrence in riverine and aquatic habitat which have stony and rocky formation.

1.8. RESULTS :

Being a phyto-geographer, the best efforts has been made in this research paper to conserve and analyse of decrease of natural vegetation and associated factors in Hissar district, Haryana. Further in this aspect, one can visualise very well the results of any sort of contribution of the efforts made by Department of Forest and public awareness in this aspect, in enhancement of the land under green coverage through implementation of successful afforestation and plantation programmes.

Natural vegetation i.e. *Butea monosperma* degradation is taking place in Hissar district through irregular rainfall, public interfere, wind erosion, water erosion, high temperature, storms and soil erosion. These processes have been accelerated by increasing technogenic and human activities it has resulted in the degradation of *Butea monosperma* of the region due to in irregular rainfall and wind erosion and high temperature are more serious and widespread. Overgrazing and indiscriminate felling of under shrubs resulted in the degradation of vegetation cover and decrease in biomass

production. In case these problems continue uncontrolled, large acreage of forest area will be affected in future.

The results suggest to take up immediate steps to adopt the improved forest management technologies with people's participation to lack of effects of decrease of natural vegetation in the region but it is not possible to conserve completely. Further the results of the study could be fruitfully utilized by the planners bio-scientists, botanists, phytogeographers, naturalists and policy makers to evolve suitable forest management technologies and strategies commensurate to the bio-conditions of the region.

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