



**A PHOTOGRAPHIC REPRESENTATION OF
SCIENTIFIC TERMINOLOGY OF FLOWERING SHOOT OF PLANTS**



Dr. Sunia Fatima

**M.Sc., Ph.D., F.S.Sc., F.S.L.Sc.
Asso. Prof. & Head, Botany
Dr. Rafiq Zakaria College for Women
Aurangabad-431001 (MS)**



Dr. Syed Zafar Javeed

**M.Sc., Ph.D.
Environmental Science
Safety Manager
ENOC, Fujairah, UAE**

ABSTRACT

The plants are distributed throughout the world. There are numerous types of plant grow in a variety of habitat. The plant kingdom is consists of different forms which are scattered in greater or less abundance over most of the soil surface of earth as well as in water. The study of angiospermic plants is bases on deep knowledge and complete enuculating of external characteristics of plants.

KEYWORDS

Flowering shoots, scientific description, plants.

RESEARCH PAPER

INTRODUCTION

A variety of plants occur on earth. To know all the details of the plant it is very essential to know the details of growth, reproduction and external morphology of plant. The study of angiospermic plants is based on deep knowledge of all the morphological features of plants. To know the natural resources of the earth one requires vast understanding of plants is very essential. The Aayurvedic science and science of naturopathy medicine is entirely dependent on correct identification of plants. The album is designed introduce scientific description of flowering shoot of certain plants. Flowering shoot is a very important characteristics feature of angiospermic plant which helps in correct identification of plant. Among the angiospermic plants there is a great variation in type of flowering shoot because of the arrangement of flowers on the peduncles. In this album the study of inflorescence is described in technical language for understanding of students and teachers of all concern fields.

Material and methods

Collection of flowering shoots: The flowering shoots of different plants were collected from various places of India and brought to the laboratory in a sterile clean Vasculum.

Observation of plant: The arrangement of flowers is observed keenly and by following scientific key of plant description the type of inflorescence is observed on the basis of arrangement of flowers on peduncle of the respective plant. Same procedure is followed for identification of inflorescence of each type of flowering shoot of plant.

Confirmative test: Several books and research papers were followed to confirm the type of inflorescence in plants collected for the study of type of inflorescence or flowering shoot.

Flowering shoots of plants

Recemose inflorescence: The main shoot of flowering axis shows indefinite growth. The mature flower present at the basal region & younger buds produced at the top of the axis. The stalks of flowers may have equal length. The tips of stem grow continuously and produce many flowers.



<p>Spikelet or Locusta: It is a compound inflorescence which occurs in grass (Graminaceae). Each spikelet bears number of flowers except in paddy. In grasses there are one or two glumes which are called as flowering glumes or lemmas. Each lemma bears sessile flower in its axis. Above each flowering glumes there is a pair of bracteoles which are called as palea. The sterile glumes are called as sterile bracts. The spikelet may be sessile or shortly stalked.</p>	 <p>Spike inflorescence</p>
<p>Spike: The flowering shoot is elongated on which flowers are produced, the mature flowers are present at the basal region and at the top buds are present. Mostly in spike inflorescence the flowers are without pedicel. The attachment of flowers is directly to the stem. The individual stalks are absent to flowers arising from the main stem. In spike the lower flowers open earlier than the upper ones.</p>	 <p>Spike</p>
<p>Catkin: It is a type of inflorescence which consists of long axis on which unisexual flowers are arranged. i.e. in it the peduncle is long , weak and drooping. It is a spike like inflorescence. It consists of small, sessile and bractiate flowers.</p>	 <p>Catkin</p>
<p>Umbel: The primary axis of inflorescence is comparatively short and it bears a group of flowers at its tip which possesses pedicels. The length of pedicels is more or less similar. The flowers spread out from a similar point. In this type of inflorescence a whorl of bract forming an inflorescence. Each flower develops from the axil of bract. The short reproductive shoot bear cluster of flowers that are pedicellate. The flower head has all the flower stalks arise from the same point. The head is spherical. Mostly the pedicels of all the flowers are same in length. Flowers are bractiate. The whorl of bracts present. The branched umbel is termed as compound umbel. The example of simple umbel is <i>onion</i> and the example is compound umbel is <i>Daucus</i>.</p>	 <p>Umbel</p>

<p>Capitulum or head or anthodium: The main reproductive shoot in highly reduced which resemble a flat disc which is known as receptacle. In capitulum type of inflorescence the flowers are arranged into a head. The flowers are unstalked. A single flower is termed as floret. The capitulum type of inflorescence consists of two types of flowers i.e. ray flowers and disc florets. The ray florets situated at peripheral region and disc florets are placed at centre. Flowers are sessile with involucre. The example is Sunflower.</p>	 <p>Head inflorescence</p>
<p>Cymose inflorescence: The shoot of flower consists of older flowers at the top and younger flowers are situated at the basal region from side shoots of flowering shoot.</p>	 <p>Cymose</p>
<p>Scorpioid cyme: The main reproductive shoot bears a flower at its apex hence stops the further growth of main flowering shoot. The lateral bud develops into lateral axis just below the main flowering shoot on which flowers are produced in basipetal succession. Here the arrangement of lateral branches is alternate.</p>	 <p>Scorpioid</p>
<p>Helicoid cyme: The main reproductive shoot bears a cluster of flowers and secondary flower producing bud always develops on only one side of the reproductive shoot. The flowers of first bud are mature, than flowers developed from secondary bud & vice versa.</p>	 <p>Helicoid cyme</p>

<p>Multiparous or polychasial cyme: The main reproductive shoot ends in a flower & simultaneously it produce many lateral flowering buds which develop into many flowers and that entire inflorescence appear like an umbel. i. e. in this case the main axis terminates in a flower. It produces a number of lateral branches around. Each branch repeats the same kind of growth.</p>	 <p>Multiparous dichasial cyme</p>
<p>Solitary cyme: The axillary bud develops into a flower hence the growth of reproductive shoot is reduced. A single flower is produced at the end of each stem. This type of inflorescence is termed as solitary cyme.</p>	 <p>Solitary Inflorescence</p>
<p>Compound receme or panicle: It is a recemose type of inflorescence. It is branched. Each branch consists of a smaller raceme of flowers. The terminal buds of each branch of flowering shoot grow continuously which produces many side shoots on which flowers are produced. In this case the main reproductive shoot and the lateral branches both bear flowers.</p>	 <p>Panicle of cyme</p>
<p>Compound umbel: The reproductive shoot is short and branched. From the apex of each branch flowers are produced which are pedicellate. There is a separate involucre for each branch. It is the type of inflorescence in which each stalk of main axis of umbel produces secondary smaller umbel of flowers. Such arrangement termed as compound umbel.</p>	 <p>Umbel type of inflorescence</p>

<p>Compound Spike: The reproductive shoot is elongated which is having elongated lateral shoots on which flower are developed.</p>	 <p>Compound spike</p>
<p>Compound Spadix: The compound spadix consists of branched peduncle on which flowers are produced. The inflorescence is protected by spathe which is fleshy.</p>	 <p>Spadix Inflorescence</p>
<p>Compound Head or Capitulum or Anthodium: The main flowering shoots in highly reduced which resemble a flat disc which in known as receptacle. In each capitulum there are numerous small capitulla or heads surrounded by separate involucre of bracts. The head inflorescence of heads is termed as compound head type of inflorescence.</p>	 <p>Capitulum type of inflorescence</p>
<p>Verticelaster: It is also known as whorled inflorescence. It is a modified cymose or condensed form of cymose. The cluster of sessile or sub sessile flowers are arranged on reproductive shoot, forming whorls of sessile flowers at the nodal region. In other words verticelaster type of inflorescence is a condensed dichasial cyme developing from two axillary buds. It forms a ball like cluster at the nodes. Each node contains cyme.</p>	 <p>Verticillaster</p>

BIBLIOGRAPHY

- David Krogh ,(2010), *Biology: A Guide to the Natural World*, Benjamin-Cummings Publishing Company, p. 463, ISBN 978-0-321-61655-5
- Eames, A. J., (1961). *Morphology of the Angiosperms* McGraw-Hill Book Co., New York.
- Gifford, E.M. & Foster, A.S., (1989). *Morphology and Evolution of Vascular Plants* (3rd ed.). New York: W.H. Freeman & Co. ISBN 978-0-7167-1946-5.
- Mauseth, James D., (2008). *Botany: An Introduction to Plant Biology*. Jones & Bartlett. ISBN 978-0-7637-5345-0.
- Pandey, Brahma Prakash, (2005). *Textbook of botany angiosperms: taxonomy, anatomy, embryology (including tissue culture) and economic botany*. New Delhi: S. Chand & Company. p 410.
- Sharma, O. P., (2009). *Plant Taxonomy* (2 ed.). Tata McGraw-Hill Education. pp. 165–166. ISBN 1259081370.
- Simpson, M. G., (2010). "Plant Morphology". In: *Plant Systematics, 2nd. edition*. Elsevier Academic Press. Chapter 9.
- Speck, T.; Burgert, I., (2011). "Plant Stems: Functional Design and Mechanics". *Annual Review of Materials Research* 41: 169. doi:10.1146/annurev-matsci-062910-100425.