

Q. Point out the Angiospermic features of Gnetum.

INTRODUCTION → Gnetum is an advanced member of Gymnosperm where many features are Angiospermic. These closeness have been greatly emphasized by various workers. 'Arbores' and 'Parkin' (1908) were of the opinion that both the angiosperms and gymnosperms have evolved from a common hypothetical group hemi-angiosperm.

'Thomson' 1916 thought that the ancestor of angiosperm were very closed to the genus Gnetum.

Hagerup 1932, after studying the floral development of Gnetales, Piperaceae and Juglandaceae of angiosperm concluded that they closely resemble each other and the differences are of minor importance. He postulated the view that Gnetales would be easily included under angiosperm originated from some gymnospermic plants though Gnetales.

ANGIOSPERMIC FEATURES OF GNETALES →

The features of Gnetum commonly angiosperm are following —

1. It has climbing or tree like habit as angiosperm have.
2. The oval or lanceolate leaves of

Gnetum per arranged and the branches is decussate pair like most of the angiosperms.

3. The leaf lamina has a reticulate venation like dicot angiosperms.

4. Anatomically also the leaves bears are divided into palisade and spongy mesophyll.

5. The lower epidermis of leaves bears numerous stomata like dicot angiosperms.

6. The stomatal apparatus are haplo-stelic.

7. The shoot apex is differentiated into tunica and corpus layer as the angiosperm.

8. The vascular bundles of stem are conjoint, collateral and open. They are arranged in ring like a dicot angiosperm.

9. In arborescent species, the secondary thickening result from the activity of a single cambium but in the climbing species successive cambia give rise to a series of co-axial cylinders of xylem and phloem as in many angiospermic woody climbers.

10. The secondary phloem contains companion cells as well as sieve tubes. This is an angiospermic character.

11. In the secondary wood of Gnetum vessels similar to those of angiosperm.

are present.

12. The strobilli of Gnetum are more close to the flower of Magnoliaceae of angiosperm.

13. Perianth is present both in male and female flower like monocotyled - ones angiosperms.

14. The well developed microphyllar type of ovules of Gnetum is regarded an approach to the true angiosperm - mous ovary.

15. Like angiosperm the female gametophyte have been found to be mono - sporic or tetrasporic.

16. In the absence of archegonia the gametophyte of Gnetum shows close resemblance with angiosperm.

17. In the development of female gametophyte of Gnetum there is tendency towards the postponement of the formation of this tissue at least in the microphyllar region.

18. In the development of the embryo the nuclear division of the zygote nucleus is completely eliminated in Gnetum.

19. Presence of two integuments in the ovule nuclear division in the embryo sac.

20. Presence of two integuments in the ovule in Gnetum is angiospermic

character.

21. Endosperm formation is delayed till the fertilization.

In this respect Gnetum approaches the angiosperm.

22. The embryo has two cotyledons like that of a cotyledons embryo.

23. Polyembryony is of very high in Gnetum like angiosperm.

CONCLUSION → In conclusion we can say that there are many feature in Gnetum that are similar to angiosperm. But these similarities appear to be cases of parallel development and do not show clear relationship. 'Maheshwari' and 'Vasil' 1961 has concluded after studying the feature of Gnetum that

"The genus Gnetum remains largely a phylogenic puzzle. It is gymnosperm but have some angio-spermic features."