APOGAMY AND APOSPORY

CC-2
UNIT-5

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INTRODUCTION

In certain ferns, apogamy occurs when the sporophyte grows from the gametophyte.

During apospory, the sporophyte's vegetative cells give rise to the gametophyte directly. The haploid gametophyte (n) becomes a haploid sporophyte (n) rather than a diploid sporophyte (2n) because apogamy occurs without syngamy.

DEFINITION

Apogamy:

Apogamy is a special kind of asexual reproduction found in ferns, where haploid gametophytes evolve into haploid sporophyte(n) without the need for gamete fusion.

APOSPORY : Without meiosis or spore development, apospory is the process by which the diploid gametophyte (2n) is formed from the vegetative cells of the sporophyte (2n).

In the year 1884 Druery made the initial discovery of it in the plant *Athyrium foemina* var. *clarissima jones*. The sporangium stalk and head of this type gave rise to the aposporous gametophyte that has grown.

Asplenium dimorphum, *Pteris aquiline*, and *Osmunda javanica* are the plants in which apospory naturally occurs.

Apospory and Apogamy

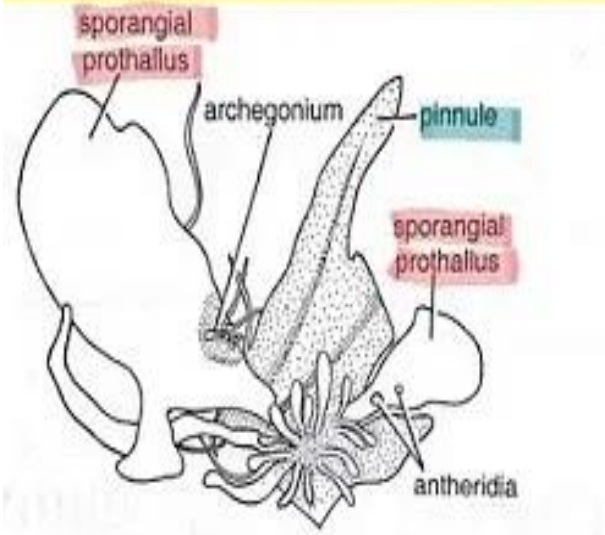
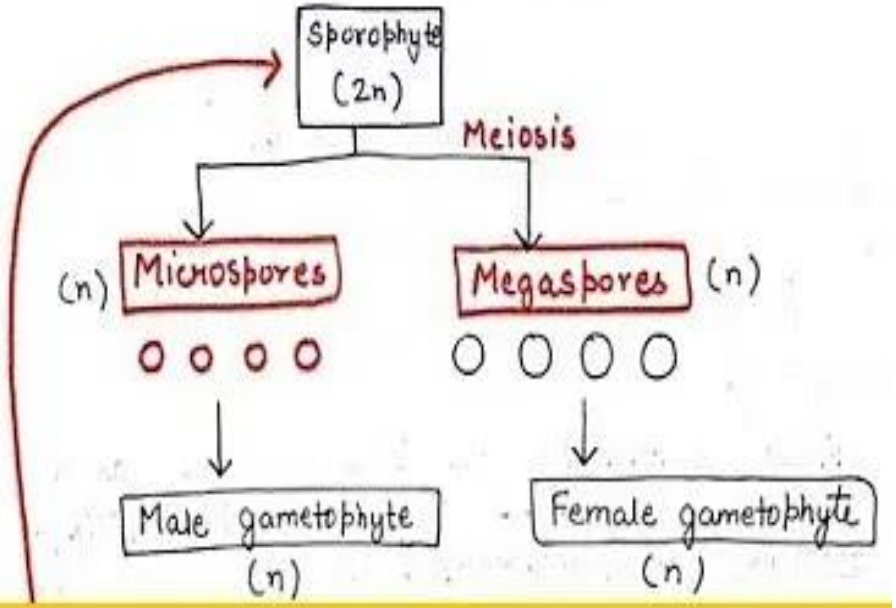


Fig. 1. Apospory: Soral apospory of *Athyrium filix-femina* var. *clarissima* (adopted from Bower, 1923).



APOSPORY AND APOGAMY DIFFERENCES

APOGAMY	APOSPORY
The gametophyte grows from the sporophyte in an asexual reproduction process known as apogamy in plants.	The development of sporophyte from gametophyte occurs during asexual reproduction known as apospory.
Generates a gametophyte that is diploid	Haploid embryo is produced.
Without the production of gametophytes, gametes are generated.	Without going through the process of fertilisation, the embryo forms.

CAUSES OF APOGAMY

- Plants with an older prothallus have a higher likelihood of apogamy occurring. Less opportunities for fusion will arise if the gametophyte is unable to generate gametes.
- Therefore, when the development of sex organs fails, apogamy will take place. When plants are unable to carry out regular fertilization (sexual reproduction), either because of abnormal physiological conditions or environmental factors, apogamy occurs.

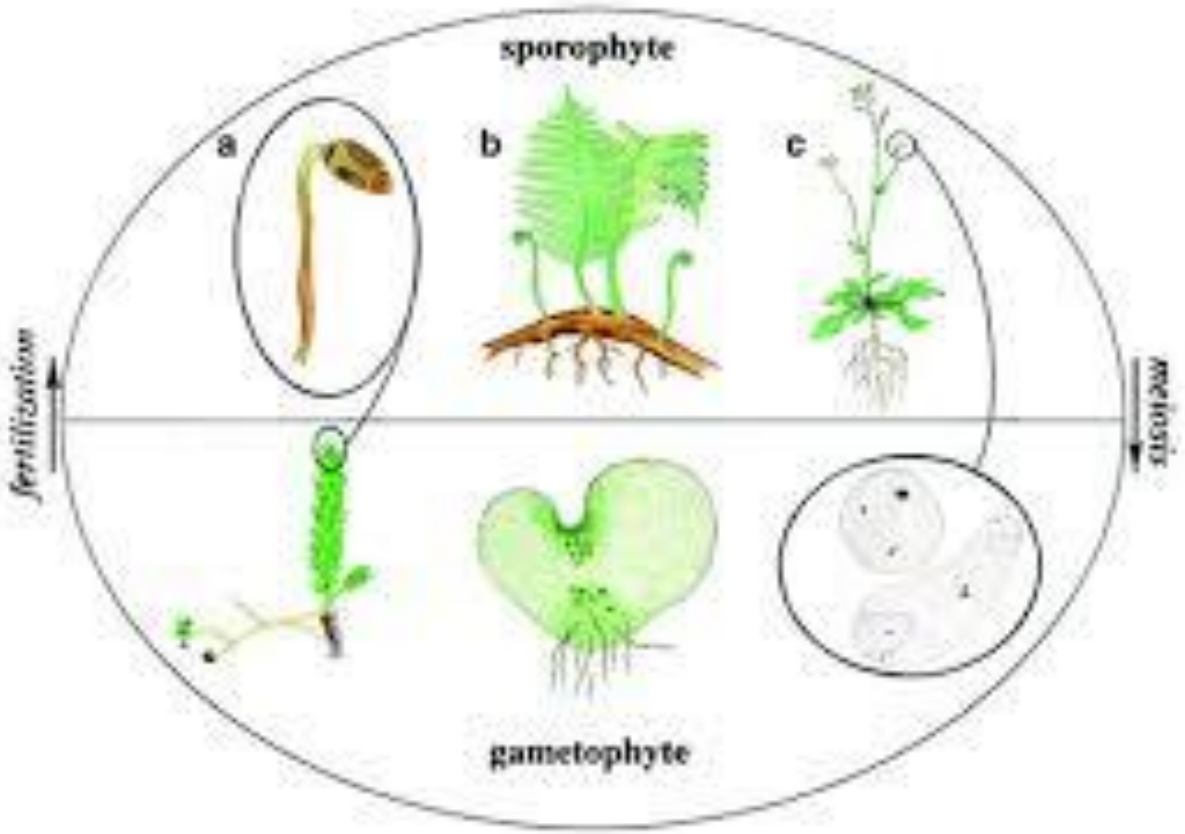
CAUSES OF APOSPORY

The pteridophytes that experience apospory are those that lack mineral nourishment as a result of the deficiency of minerals in the soil. The likelihood of apospory developing increases if pteridophyte leaves grow in low light.

Relatives of Apospory and Apogamy

- Both apogamy and apospory include asexual reproduction. They both happen inside of plants. In both events, the sporophyte and gametophyte have the same ploidy level.

- They both mostly occur in bryophytes. Gamete production does not take place during apogamy or apospory. They both take part in the life cycle's alternation of generation, which involves the changing of an asexual phase called sporophyte and a sexual phase called gametophyte.


sporophyte
a
b
c
fertilization
meiosis
gametophyte


Thank you!