MEDWIN PUBLISHERS
Committed to Create Value for Researchers

Open Access Journal of Botanical Insights
ISSN: 2997-0180

Aborted Spores in Argentine Ferns

Gorrer DA*

Faculty of Agrarian Sciences, UNJu, Argentina

***Corresponding author:** Daniel Alejandro Gorrer, Faculty of Agrarian Sciences, UNJu, 4600, San Salvador de Jujuy, Jujuy, Argentina, Email: daniel.ale.gorrer@gmail.com

Commentary

Volume 2 Issue 2

Received Date: June 20, 2024

Published Date: August 21, 2024

DOI: 10.23880/oajbi-16000116

Keywords: *Dryopteris;* Argentine Ferns; Aborted Spores

Commentary

Fern spores collect valuable data in their walls to interpret their survival, viability, dispersal, reproduction and phylogenetic relationships. *Dryopteris* Adans. (Dryopteridaceae) with 400 species is one of the genera with the largest number of taxa. The spores are monolete, mainly folded, or also echinulate or cristate.

Despite the specific diversity of the genus, with a wide distribution in America, its spores have been very little studied. Several authors mention for *Dryopteris* the presence of hybrids and species with apogamous reproduction, characteristics that are evident when studying the spores.

Various works on the spores of *Dryopteris* that grow in North America and Eurrope have been carried out to reveal the characteristics of spores with morphological alterations resulting from hybridization, polyploidy or apogamy.

Hybridization and polyploid formation are important evolutionary mechanisms contributing to the development of new species in ferns and other vascular plants. Polyploidy appears to be particularly common in ferns and almost 95% of fern species are assumed to have undergone polyploidization during their evolutionary history. In general, polyploids are classified as allopolyploids and autopolyploids depending on the degree of divergence between their parental genomes. Allopolyploids result from interspecific hybridization followed by genome duplication, while autopolyploids are formed as a result of genome duplication within a single species. Apomixis in ferns includes two associated processes, apogamy and agamospory, the first one consists of the formation of sporophytes from somatic cells of the prothallus and the second one consists of the production of unreduced diplospores. Agamospory involves the production of unreduced spores followed by apogamous reproduction in the gametophyte.

The term apogamy is used mainly for ferns and lycophytes and refers to the formation of sporophytes from unreduced gametophyte cells resulting from unreduced spores (diplospores) without any sexual process.

Sexual species generally form good spores, hybrids generally sterile spores (predominantly aborted) and apogamous species are known for an unbalanced spore spectrum. However, there are several ways how spores are formed in sexual apogamous ferns. A higher amount of aborted spores is expected from apogamous individuals than sexual species due to imbalances in meiosis.

For India, about 48% of the species of the genus *Dryopteris* are polyploid and about 41% are apomictic.

Dryopteris hybrids, instead of having regular and kidney-shaped spores, are aborted and irregular, normally with a thick and dark perispore, with many smaller fragments. This is the result of the failure in cell division due mainly to the inability of chromosomes from different genomes to pair during meiosis.

Many authors have proposed tools for the detection of hybridization patterns. For example, sporangia or spores: dwarf and shrunken type: it is the most common; 2) irregularly divided type: the last division was not carried out under normal conditions in sporogenesis, they show various sizes and shapes, even trilete spores could be seen in an extreme case; 3) imperfectly divided type: they are not completely divided and appear forming aggregates.