

Edexcel (B) Biology A-level

2.5 - Sexual reproduction in plants

Flashcards

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How does a pollen grain form in the anther?



How does a pollen grain form in the anther?

1. Meiosis of diploid microspore cells in the anther forms 4 haploid microspores.
2. Haploid microspores mature into pollen grains via mitosis.



Describe the structure of pollen grains.



Describe the structure of pollen grains.

Generative cell with haploid nucleus
produces 2 male gametes via mitosis.

Pollen tube cell (also has its own nucleus)
elongates to penetrate ovule.

Outer protective coating.



How does the embryo sac form in the ovule?



How does the embryo sac form in the ovule?

1. Mitosis of diploid megaspore cells in ovule forms 1 ootid & 3 polar bodies. Polar bodies degenerate then are reabsorbed.
2. After 3 mitotic divisions, ootid forms embryo sac.



Describe the structure of the embryo sac.



Describe the structure of the embryo sac.

- **2 polar nuclei** form endosperm.
- **Ovum** forms zygote.
- **2 synergids** help generative nucleus of pollen grain to reach ovum.
- **3 antipodal cells.**
- **Outer protective coating.**



How do male nuclei reach the embryo sac?



How do male nuclei reach the embryo sac?

1. Pollen grain germinates on stigma.
2. Enzymes digest surrounding tissue, providing nutrient source. Enables pollen tube to grow down style then through micropyle.
3. Mitosis of pollen grain generative cell produces 2 male gametes which enter embryo sac.



Where does double fertilisation occur?



Where does double fertilisation occur?

Embryo sac of ovule.



What happens during double fertilisation?



What happens during double fertilisation?

Diploid zygote forms when 1 male gamete and ovum nucleus fuse.

Triploid endosperm forms when 1 male gamete and 2 polar nuclei fuse.



What is the purpose of a triploid endosperm?



What is the purpose of a triploid endosperm?

Nutrient source for embryo.



At what sucrose concentration do pollen tubes grow best?



At what sucrose concentration do pollen tubes grow best?

Near isotonic; prevents osmotic damage.

