

## Floral blight of gram incited by *Alternaria alternata*

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Gram (*Cicer arietinum* L.) is one of the common pulses in India and is important for domestic as well as a medicinal purposes. It is cultivated as an unirrigated crop during winter (October to March) and is best suited to areas having moderate to low rainfall and mild cold weather.

During surveys in 1970–71 and 1971–72 seasons, floral blight of gram was observed on the Agricultural Farm, Banaras Hindu University. The disease was severe and caused considerable loss to the crop.

The disease manifests itself at the flowering stage. The infected buds and flowers shrivel and finally turn brown and fall premature. The individual floral parts also get shrivelled, lose their normal colour and fade. The burnt appearance of the flower is due to the development of conidiophores and conidia (Fig. 1). Consequently no pod formation occurs and the number of pods on a plant is very much reduced.

Fig. 1. Healthy (A) and diseased (B) twigs of gram (*Cicer arietinum*).



Fig. 1. Gezonde (A) en zieke (B) stengels van grauwe Spaanse erwt (*C. arietinum*).

Fig. 2. (1) Attachment of conidia; (2-8) Conidia; (9-12) germination of conidia. Scale A: 1, 9-12; Scale B: 2-8.

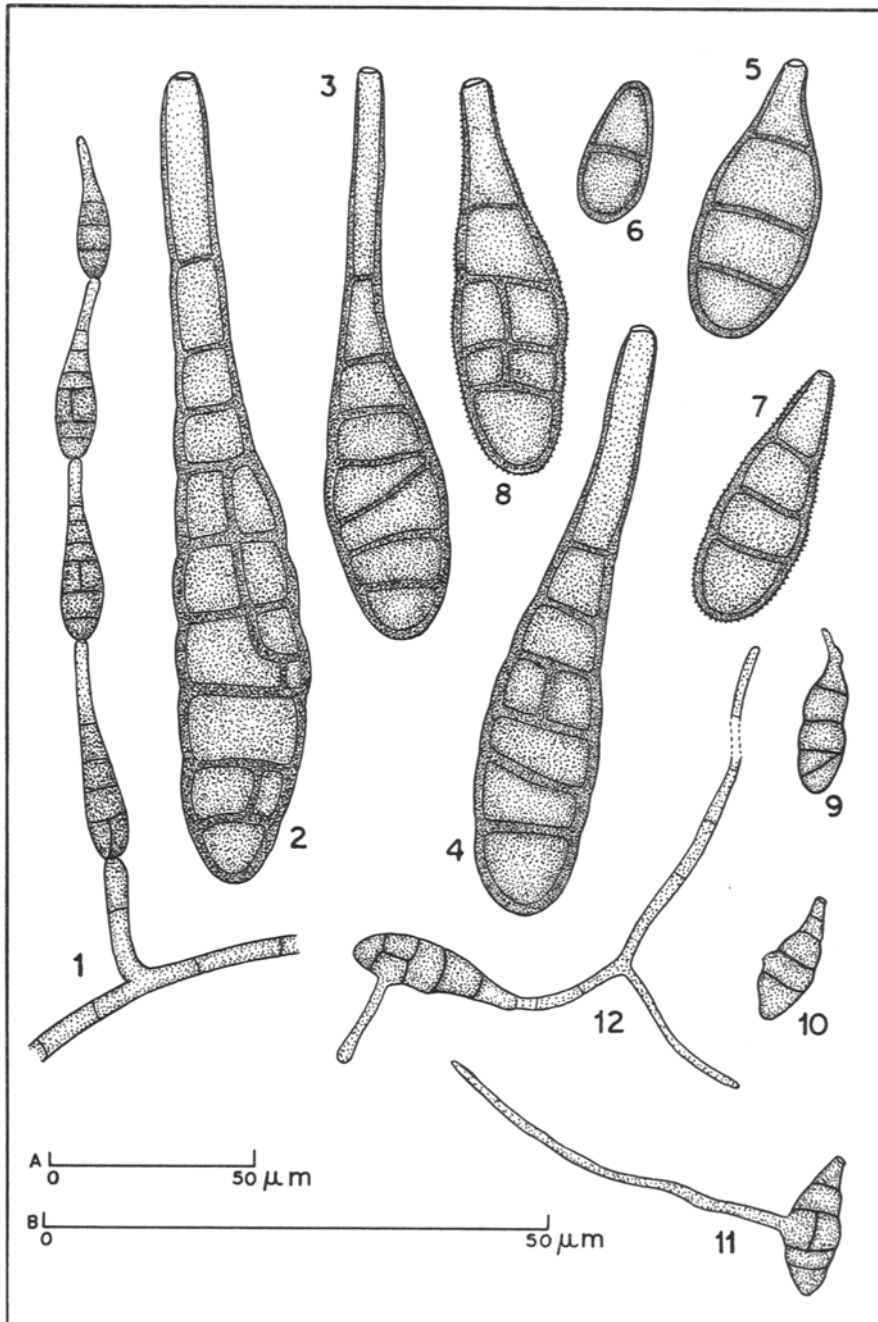


Fig. 2. (1) Aanhechting van conidiën; (2-8) conidiën; (9-12) kiemende conidiën. Schaal A: 1, 9-12; schaal B: 2-8.

## Isolation of the pathogen and pathogenicity

The pathogen from the affected flowers was isolated after surface sterilisation with 0.1 % HgCl<sub>2</sub> solution for 15 seconds and subsequent washing. Fragments were transferred to PDA in Petri dishes and incubated at 28°C. After 2–3 days mycelium developed. Single spore cultures were prepared from primary conidia.

Pathogenicity tests of the isolate were conducted on healthy plants. Spore suspension prepared from a fresh culture of the pathogen was sprayed on young buds and the plants were covered with polythene bags for 24 hours. Typical symptoms developed after 15 days. The pathogen was re-isolated from infected flowers and resembled the original isolate, thus, confirming Koch's postulates.

The morphology of the fungus (Fig. 2) corresponds to that of *Alternaria alternata* (Fr.) Keissler (Simmons, 1967; Ellis, 1971). The identification has been confirmed by Dr M. B. Ellis at the Commonwealth Mycological Institute, Kew, Surrey (IMI 175097). As far as known to the authors, there are no previous reports of *Alternaria alternata* inciting floral blight of gram.

## Acknowledgment

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## Samenvatting

*Een ernstige bloemaantasting van de grauwe Spaanse erwt veroorzaakt door Alternaria alternata*

In de groeiseizoenen 1970–'71 en 1971–'72 werd op de proefboerderij van de Hindu Universiteit van Benares (India) een ernstige bloemaantasting waargenomen bij de grauwe Spaanse erwt (*Cicer arietinum* L.). Hierdoor werd het aantal peulen per plant sterk gereduceerd. Op de aangetaste bloemen (Fig. 1) sporuleerde in een later stadium een schimmel die werd geïsoleerd. Inoculatie van jonge bloemknoppen met sporesuspensie van deze schimmel, die werd geïdentificeerd als *Alternaria alternata* (Fr.) Keissler (Fig. 2), veroorzaakte weer dezelfde symptomen.

## References

- Ellis, M. B., 1971. Dematiaceous Hyphomycetes. Commonwealth Mycological Institute, Kew.  
Simmons, E. G., 1967. Typication of *Alternaria*, *Stemphylium* and *Ulocladium*. Mycologia 59: 67–92.

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