

control plants indicated that the intensity of various reactions gradually increased and the engorged pollen grains showed the highest concentrations of these substances (Figs. 9, 10). On the other hand, in the anthers of plants inoculated at different stages of growth, the concentration of these substances decreased with the increase in the extent of pollen sterility. The plants inoculated a fortnight prior to the floral bud initiation exhibiting complete pollen sterility showed inconspicuous PAS reaction and lower amounts of proteins, histones and DNA in different parts of anther including the malformed tapetum and pollen grains (Figs. 11, 12). Similar findings in some cytoplasmic, genic and chemically induced male sterile plants have also been recorded¹⁵.

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1. Tarr, S. A. J., *Principles of Plant Pathology*, The Macmillan Press, London, 1972.
2. Ohta, Y., *Jpn. J. Genet.*, 1970, 45, 227.
3. Awasthi, D. N. and Singh, B. P., *Indian Phytopath.*, 1974, 27, 218.
4. Yarwood, C. E., *Adv. Virus Res.*, 1957, 4, 243.
5. Steere, R. L., *Ibid.*, 1959, 6, 1.
6. Alexander, M. P., *Stain Tech.*, 1969, 44, 117.
7. Jensen, W. A., *Botanical Histochemistry*, W. H. Freeman and Co., San Francisco, 1962.
8. Chauhan, S. V. S., *Curr. Sci.*, 1977, 46, 674.
9. —, *Phytomorphology*, 1979, 29, 245.
10. Novak, F. J., *Z. Pflanzenzucht*, 1971, 65, 221.
11. Horner, H. T. Jr. and Rogers, M. A., *Can. J. Bot.*, 1974, 52, 435.
12. Chauhan, S. V. S., *Curr. Sci.*, 1976, 45, 274.
13. —, *J. Indian Bot. Soc.*, 1980, 59, 133.
14. — and Kinoshita, T., *Jpn. J. Breed.*, 1980, 30, 117.
15. — and —, *Ibid.*, 1979, 29, 297.

BACILLUS CEREUS AS A CAUSE OF ABORTION IN A MARE

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Bacillus cereus, first described by Frankland and Frankland in the year 1887, is generally considered as a saprophyte¹. Occasionally, this organism has

been incriminated in food poisoning in man² and in cases of abortions in cattle³. However, there are no records of the involvement of this organism in equine abortions. This report documents the isolation of *B. cereus* from an aborted equine foetus and the cervical mucus of the aborted mare.

During the study of the bacterial flora of the cervical mucus of mares and aborted equine foetuses, *B. cereus* was isolated from an aborted foetus and its mare. The aborted mare, a thoroughbred, was barren during the last two seasons prior to the abortive conception. The mare aborted around 160 days post-conception. The foetus did not show any gross abnormalities. The heart blood and the stomach contents of the foetus and the cervical mucus of the mare were collected aseptically and cultured on 8% blood agar plates. Incubation was carried out at 37°C under 10% carbon-dioxide tension for 48 hr before examination.

Examination of the plates inoculated with the heart blood, stomach contents and cervical mucus revealed the presence of similar colonies. They were 1–2 mm in diameter, greyish-white with a rough surface. The margins were undulating. The colonies were surrounded by a zone of beta haemolysis. Microscopical examination after gram staining of the smears of the colonies from the three plates showed the organisms as gram positive sporulating rods. The spores were located centrally. The organisms were identified as *Bacillus cereus*².

Although, *B. cereus* is generally considered as a saprophyte, its saprophytic nature should not be viewed lightly as it has been incriminated as a primary pathogen in three cases of bovine abortions in three different herds³. In the present report, the isolation of *B. cereus* from the heart blood and stomach contents of the foetus and the cervical mucus of the aborted mare points to the possibility of a positive role played by this organism in equine abortion. Available literature does not reveal the involvement of *B. cereus* in equine abortion. This report therefore is the first of its kind.

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1. Bob A. Freeman, In *Burrows Text Book of Microbiology*, W. B. Sanders Company, West Washington Square, PA, USA, 1979, pp. 631.
2. Gibson, T. and Gordon, R. E., In *The Bergey's Manual of Determinative Bacteriology*, 8th ed., The Williams and Wilkins Company, Baltimore, USA, 1974, pp. 354.
3. Wohlegemuth, K., Bicknell, K. J. and Kirkbride, C. A., *J.A.V.M.A.*, 1972, 161, 1688.