Table 1. Inhibiting Effect of Hydrogen Peroxide on Germination of Ergot Conidia of Saprophytic Origin (per cent) and on Growth of Germ Hyphæ (Micra); Elimination of Inhibiting Effects by Ergothioneine and by Honey-Dew Sap

Culture medium + inhibitor and protector	Conidia germinated during 24 hr. No. (per cent)	Length (μ)
5×10^{-3} *M* hydrogen peroxide	0	0
5×10^{-3} *M* ergothioneine	15	110
5×10^{-3} *M* ergothioneine + 5×10^{-3} *M* hydrogen peroxide	13	90
1 : 50 diluted honey-dew sap	24	325
1 : 50 diluted honey-dew sap + 5×10^{-3} *M* hydrogen peroxide	22	325
Control	17	105

intense stimulation of growth was observed. No toxic effect of hydrogen peroxide was found in the presence of honey-dew sap (see Table 1).

These results indicate that honey-dew contains certain substances which are stimulating and certain which are protective against hydrogen peroxide. Among the protective substances there are ergothioneine and catalase, which may at least partially account for the fact that honey-dew conidia are more aggressive than conidia of saprophytic origin[3].

I am indebted to Prof. G. Hunter for help in this investigation. It is proposed to publish fuller results elsewhere.

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A Lysogenic Strain of *Rhizobium trifolii*

During the course of routine examination of strain *SU*298 (Sydney University strain) of *Rhizobium trifolii*, it was suspected that the strain was carrying a bacteriophage. Subsequent investigation proved strain *SU*298 to be lysogenic, and the closely related strain *SU*297 to be a susceptible indicator strain. The field-performances and relationships of these strains have recently been reviewed by Vincent[1]. The occurrence of lysogeny in *SU*298 was demonstrated by seeding yeast mannitol agar (0·4 per cent agar) with appropriate proportions of each strain and incubating the plates at 26° C. After 24–48 hr., plaques could be observed in the otherwise confluent growth of *SU*297. At the centre of each plaque was a colony of the lysogenic strain. The lysogenic nature of strain *SU*298 was confirmed by the fact that it proved to be resistant to the purified phage; strain *SU*297, on the other hand, was fully susceptible.

A series of colonial variants of strain *SU*298, the characteristics of which have been described in detail by Vincent[1], were examined to determine whether they were lysogenic. Only one variant, namely, *SU*298/536, was found to be non-lysogenic. Somewhat unexpectedly, this colony type was found to be resistant to the phage obtained from the lysogenic cultures. As the somatic antigenic constitution of *SU*298/536 was found by Vincent to differ considerably from that of the original strain *SU*298, the resistance to the phage could possibly be explained in terms of the suggestion by Marshall and Vincent[2] that the possession of a particular antigen is an essential prerequisite to the action of some strains of bacteriophage on *R. trifolii*.

On present evidence, the practical significance of *Rhizobium* – bacteriophage interaction in soils is somewhat questionable. Similarly, lysogenic strains of root-nodule bacteria may be of questionable significance in soils, although it is felt that the inherent resistance of a lysogenic strain to a particular phage would be to its advantage in soils containing such a phage. The occurrence of lysogeny may be of more practical significance where mixtures of strains are used in the preparation of peat cultures for legume inoculation. Both the lysogenic strain *SU*298 and the susceptible indicator strain *SU*297 have been used in mixed cultures in Australia. I have recently demonstrated (unpublished results) that strain *SU*298 dominates strain *SU*297 when they are mixed in peat. Investigations are in progress to determine whether this is due to the susceptibility of *SU*297 to the phage of the lysogenic *SU*298.

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Deoxyribonucleic Acid Deficiency in the Mature Egg Nucleus of *Aloe davyana* in South Africa

Recently, there have been two or three accounts of deoxyribonucleic acid deficiency in the egg nucleus of both angiosperms and algae. Delay, for example[1], states that the egg nucleus in the oogonium of *Chara* was found to be Feulgen-negative, whereas the antherozoids were Feulgen-positive right up to the commencement of fusion. Rowlands[2] makes a similar observation on the embryo sac of *Vicia* and puts forward a reason for the deficiency. It was felt that it might prove useful to report a like deficiency in *Aloe davyana*.

The material used in the investigation was collected at Mondeor in the vicinity of Johannesburg in August 1954 by Miss D. Dimovic. The time of collection was one of extremely low mean night temperatures.

The development of the embryo sac of *Aloe davyana* has proved to be of the eight-nucleated type in which the antipodals disintegrate very early.

Previously all stages of the young embryo sac had been stained with crystal violet and had stained well, showing good deoxyribonucleic acid content. The mature embryo sacs over three seasons, however, showed only very faint coloration or none, particularly in the case of the egg nuclei. The synergids and central nuclei were darker, but still did not compare with the deep violet of nucellus nuclei. The optimal thickness for sections was found to be 18μ, and crystal violet stained equally well after Navashin and formalin–acetic–alcohol fixatives. After formalin–acetic–alcohol, using hæmatoxylin, which is not specific for deoxyribonucleic acid, the egg nucleus stained well.

Next the Feulgen method was applied, using cold hydrolysis in 5 *N* hydrochloric acid for forty minutes to one hour at room temperature[3]. The same gradation of colour in the embryo sac as mentioned above was observed in each case. Since leuco-basic fuchsin is specific for deoxyribonucleic acid, the pale pink of the mature egg nucleus against the deep red nucellus nuclei may be taken as proof of deficiency. Feulgen–light green staining was used with the same result.