fungus has no resemblance to any of the known species of *Protomycopsis* either in host symptoms or the spore morphology. It is therefore proposed as a new species in honour of Dr. M. J. THIRUMALACHAR, an eminent researcher and devoted student of fungi.

Protomycopsis thirumalacharii sp. nov. Infection spots on leaflets, few, brownish purple, opaque, 3–6 × 2–4 mm. Mycelium intercellular, septate, branched and mostly consumed in forming chlamydospores terminally. Mature chlamydospores abundant in the mesophyll, cinnamon brown, globose to oval, occasionally ovate, often with a short hyphal appendage and 18.3–25.4 μ in diameter with a mean of 23 μ. Exospore very thick (up to 2.5 μ) and ornamented with hyaline to yellowish, bluntly conical processes 2–6 μ high.

On living leaves of *Sesbania grandiflora* Pers. at Varanasi, U.P. on 21 September 1962. Leg. M. S. PAVGI., Type MSP No. 261.

Infectionis maculae in foliolis, rarae brunneolo-purpureae polyhedrales non-translucidae, 3–6 × 2–4 mm. Mycelium intercellulare septatum ramosum et vulgo consumptum in efformandis chlamydosporis terminaliter. Chlamydosporae maturae abundanter evolutae in mesophyllo, cinnamomo-brunneae, globosae vel ovales interdum ovatae saepe ornatae appendice hyphali brevi 18.3–25.4 μ diam. mediet. 23 μ. Exosporium crasissimum ad 2.5 μ et ornatum processibus hyalinis minutis conicis 2–6 μ altis.

Typus lectus in foliis viventibus *Sesbaniae grandiflorae* Pers. ad Varanasi die 21 septembri anni 1962 a M. S. PAVGI et positus in Herbarium sub numero MSP 261.

The type material of the species is being deposited in the Herbarium Crypt, Indiae Orient., Indian Agricultural Research Institute, New Delhi, and the Commonwealth Mycological Institute, Kew, England[6].

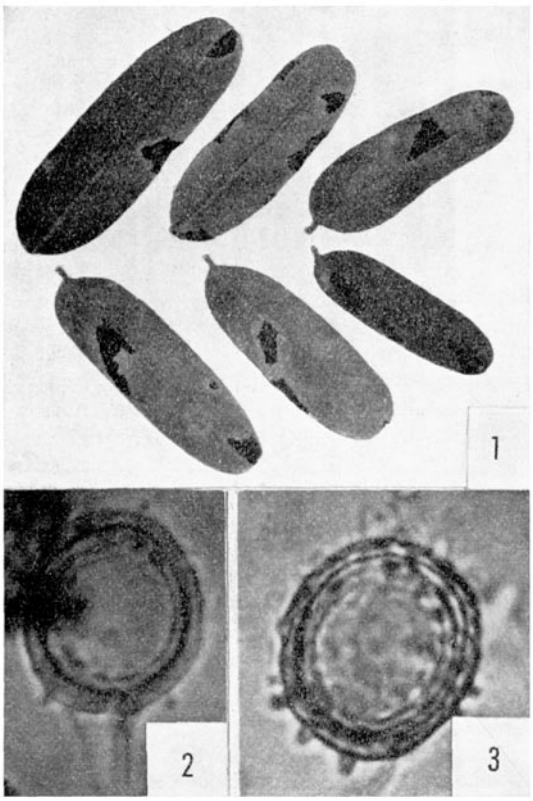

Fig. 1. Infection on the leaflets of *Sesbania grandiflora* Pers. Natural size.
Fig. 2. A chlamydospore with hyphal remnant. × 1200.
Fig. 3. Mature chlamydospore. × 1200.

Zusammenfassung. Vergleichende Untersuchungen des auf Blättern von *Sesbania grandiflora* Pers. vorkommenden Pilzes *Protomycopsis* aus Varanasi (Indien) ergeben eine bisher unbeschriebene Art, die von uns als *Protomycopsis thirumalacharii* Pavgi bezeichnet wird.

M. S. PAVGI

College of Agriculture, Banaras Hindu University (India), March 6, 1964.

[6] I am grateful to Rev. Dr. H. SANTAPAU, Director Botanical Survey of India, Calcutta, for kindly providing the Latin translation of the diagnosis.

Modifications of the Vestibular DC resting Potentials by Stimulation of the Efferent Vestibular System

Electric stimulation of the efferent vestibular system (EVS), close to the area of the Deiters nucleus, causes a distinct reduction of the action potentials of the contralateral vestibular nerve; sometimes this stimulation elicits also a discharge[1]. Direct demonstration of the efferent vestibular activity was later performed[2,3].

The purpose of this paper was to study the efferent influence on vestibular DC resting potentials (DC RP). 25 adult cats were tracheotomized and decerebrated precollicularly, sometimes also decerebellated. A small niche was then bored by microdrill in the petrous bone at the level of the crus commune. We were careful not to touch the wall of the membranous labyrinth at all. The vestibular DC RP were recorded with a Hewlett Packard microvoltmeter. Chlorided silver wires were used as electrodes, with a 0.15 mm diameter, insulated except at the tip. The active electrode was placed in the small niche at the level of the crus commune, and the indifferent electrode at a short distance upon the skull bone. To overcome the artifacts due to contact potentials[4], we used SCHMIDT and

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[2] R. S. SCHMIDT, Acta otolaryngol. *56*, 51 (1963).
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FERNANDEZ's technique[5]; the tip of the active electrode was placed on the bone near the small niche bored into the petrous bone and the microvoltmeter was adjusted to zero. The electrode was then shifted into the niche. Following this step we constantly observed the appearance of a positive potential which was to be ascribed to the vestibular DC RP against the petrous bone.

Procedures. (1) Thermic 'stimulation' of a labyrinth (cold and warm water) was performed and vestibular DC RP were recorded at the level both of the stimulated labyrinth and of the contralateral one. (2) Tetanic electric stimulation of the EVS (areas of the two Deiters nuclei and region of the raphe between the two Deiters nuclei) was performed and vestibular DC RP were recorded. (3) Electric stimulation of the EVS was performed as soon as the thermic (warm and cold) 'stimulation' of the recorded labyrinth had caused the maximal modifications of the vestibular DC RP. (4) Strychnine sulphate was administered intravenously (0.10 mg/kg body weight) in order to study its effect during stimulation of the EVS.

Results. (1) Cold 'stimulation' constantly causes a hyperpolarization of the stimulated labyrinth and simultaneously a depolarization of the contralateral labyrinth; warm 'stimulation' causes a reverse effect (feedback loop between the two labyrinths). (2) Electric stimulation of the EVS causes an increase (hyperpolarization) of the vestibular DC RP, after a latent time of 9–12 msec. The maximal effect was between 100 and 200 μV. With interruption of stimulation, the vestibular DC RP returned to their original values and sometimes a slight fall was observed. (3) Electric stimulation of the EVS increases the hyperpolarization caused by cold thermic 'stimulation' and reduces the depolarization induced by warm thermic 'stimulation'. (4) The intravenous administration of strychnine in subconvulsive doses reduces or abolishes the modifications induced on the vestibular DC RP by the stimulation of the EVS (DESMEDT and MECHELSE[6], and FEX[7] in this way blocked the effect of electric stimulation of Rasmussen's bundle on cochlear potentials).

Riassunto. La stimolazione (termica, elettrica) del sistema vestibolare efferente induce delle variazioni nei potenziali continui labirintici, derivati a livello del crus commune. Viene data la dimostrazione dell'esistenza di un feedback loop tra i due labirinti.

O. SALA

Clinica ORL, Università di Padova (Italy), October 20, 1964.

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A New Category of Females in the Life Cycle of *Brevicoryne brassicae* L.: the Ambiphasic Females

Particular forms which are intermediate between virginoparae and sexuales often appear in the life cycle of Aphids. As a matter of fact, virginoparae showing some typical morphological characteristics of the sexuales, and sexuales exhibiting features distinguishing the virginoparae, have been described in the literature. Some species of Aphids present in fact a wide range of intermediate forms between both categories. Previous authors studied such forms only from the viewpoint of external characteristics.

The present study was undertaken to determine the morpho-physiological correlations between intermediate forms and, respectively, virginoparae and sexuales of *B. brassicae*. This species has been bred under constant environmental conditions for the last 4 years. Both external features and ovarian morphology of all intermediate individuals have been examined in order to detect every possible correlated modification of these organs.

STEVENS[1] found casually two females of *Aphis rosae* showing egg-strings and winter ovaries with developing eggs, associated in both groups of ovaries. The author did not, however, pay much attention to such phenomena and later authors completely ignored it. It is well known that the features distinguishing the virginoparae from the sexuales are: longer antennae, longer siphons and cauda, which also differ morphologically, in both forms; the number of subgenital plate hairs of virginoparae is lower than the number of hairs of sexuales, moreover the hind tibiae of sexuales are shorter than tibiae of virginoparae and show on both faces numerous sense organs.

The study of hundreds of individuals has demonstrated the existence of rare forms which are perfectly intermediate between virginoparae and sexuales. Such females cannot therefore be included in either of these two categories, as shown by the study of ovaries which present highly peculiar features. All such individuals show in fact egg-strings, developing parthenogenetic eggs and young oocytes in ovarian chamber, which are typical of the virginoparae, along with mature or developing winter eggs, which are normally found only in sexual females (Figure).

Such individuals with 'mixed ovaries' are to be included in a new category, because they cannot be considered either as modified virginoparae or as modified sexuales on account of their being externally intermediate and of their producing both types of eggs. Such females may be named 'ambiphasic females'.

The ambiphasic females, which are very rare in natural populations, appear as a rule in the strains of *B. brassicae* at the end of selection experiments for the appearance of virginoparae. Selection was obtained in constant environmental conditions. It is possible in fact to obtain strains which reproduce only by parthenogenesis, even in environmental conditions which are not favourable for virginoparae[2,3].

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