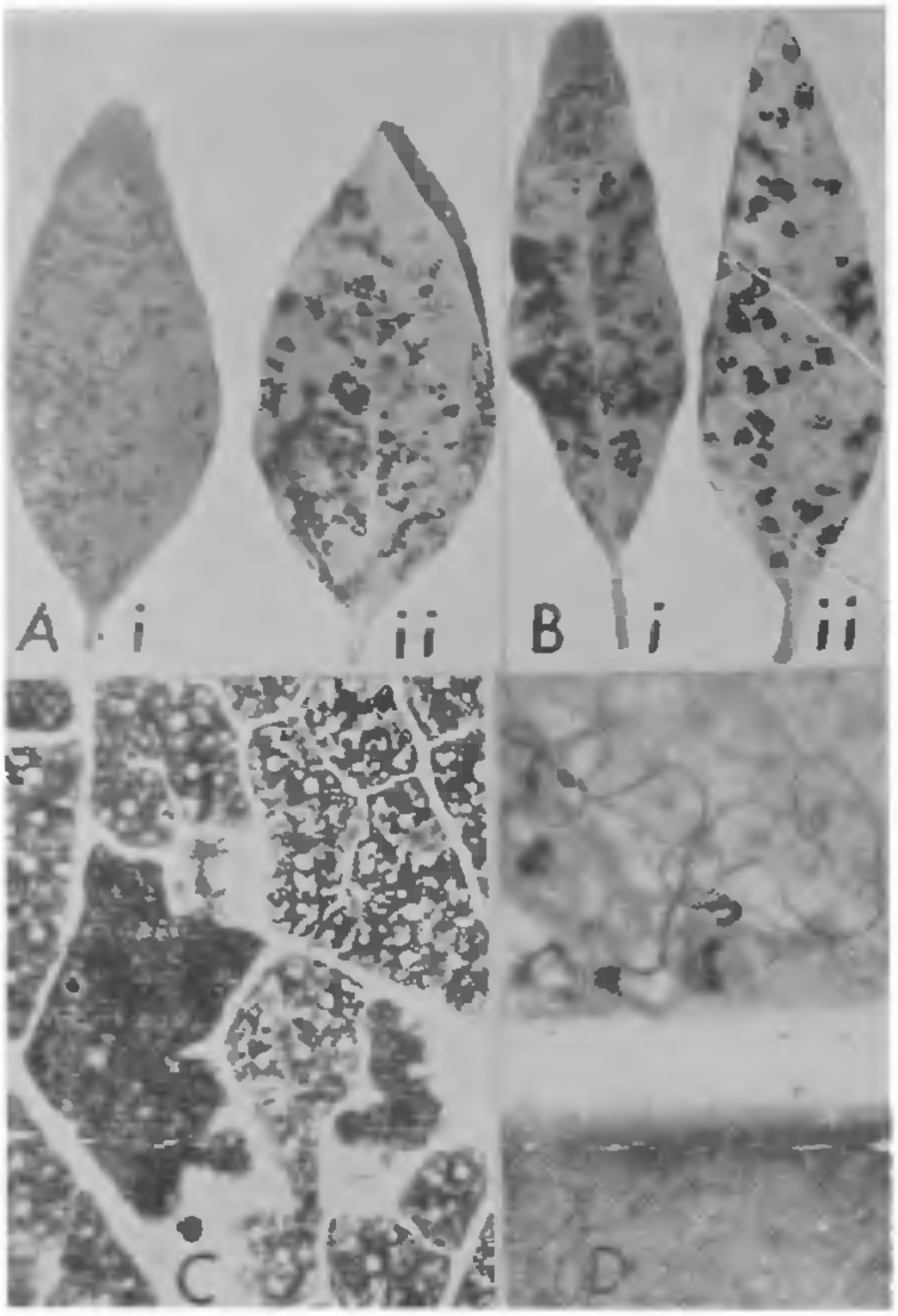

FIG. 2. A and B, Typical leaf spots caused by *Phaeoseptoria eucalypti* as seen on adaxial (i) and abaxial (ii) surfaces of leaves of *E. grandis* (A) and *E. tereticornis* (B). Note profuse sporulation on the abaxial surface. C, A characteristic necrotic spot marked by veins, with developing pycnidia. D, Mature pycnidia producing long wooly conidial horns/ tendrils.

Macranthera were affected. However in nurseries and glass-houses, seedlings of other eucalypt subgenera were attacked as well. Since in India it has been reported only on *E. globulus* Labill. from Karnataka (Padaganur and Hiremath[3]), *E. tereticornis* and *E. grandis* are new host records for *P. eucalypti*.

Though the leaf spot disease was prevalent in dry season (December to April) yet it was observed even during peak of monsoon period (July/August). The infection first appeared on mature leaves (Fig. 1). as purple to brownish-purple amphigenous spots (Figs. 2 A and B) which were characteristically angular and marked by veins (Fig. 2 C). The leaf spots gradually progressed upwards and late in the season, they were frequently noticed on younger leaves. By this time generally, all the mature leaves had defoliated prematurely due to heavy infection.

When the spots turned necrotic, minute black fruiting bodies (pycnidia), generally more on the abaxial surface, developed embedded in the leaf tissue. Pycnidia were sub-globose to globose, narrowly ostiolate with membranous pseudoparenchymatous wall. It produced abundant conidia, usually in horns or tendrils (Fig. 2 D) which appeared as brownish-black wooly mass on both the leaf surfaces (Figs. 2 A, B). Conidia were yellowish-brown to brown, cylindrical, straight to fusiform with rounded to sub-truncate base, smooth, transversely two- to several-septate, 45–55 × 4–5·5 μm.

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NODULATION OF *CAJANUS CAJAN* (PIGEON PEA) BY *RHIZOBIUM JAPONICUM*

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IT is now known that there is interchange of *rhizobia* in root nodulation of soybean and cowpea, although *Rhizobium japonicum* and *Rhizobium* sp. (cowpea miscellany) are distinct species[1–3,5]. In a recent study 35 strains of *R. japonicum* from root nodules of soybean (*Glycine max*) varieties Ankur, Bragg, Clark–63, Geduld, Lee and Kalitur were tested for root nodulation on the following representatives of different cross-inoculation groups : *Pisum sativum* var. 2004 ; *Lens culinaris* var. Pusa–2 ; *Cicer arietinum* var. 6641 ; *Medicago sativa* ; *Trifolium repens*, *Cajanus cajan* var. Prabhat ; *Vigna sinensis* var. C–152 and *Vigna aureus* var. PS–7. The experiments were done in pots containing sterilized soil by seed inoculation with different strains. Plants were uprooted after 6 weeks and examined for nodulation. The results (Table I) revealed the following :

1. None of the thirty-five strains nodulated *Medicago sativa*, *Pisum sativum*, *Lens culinaris*, *Vigna aureus*, *Cicer arietinum* and *Trifolium repens*.

TABLE I

Nodulation tests in pigeon pea and cowpea with strains of Rhizobium japonicum (*mean of three replicates, each replicate having 5 plants*)

Sl. No.	Strain No.	Origin of strain	Nodulation score of soybean	Nodulation status on Pigeon pea (*Cajanus cajan*)	Nodulation status on Cowpea (*V. aureus*)
1.	L–2	Isolated from Lee variety	2·6	–	+
2.	L–5	do.	1·3	+	+
3.	L–9	do.	1·3	+	+
4.	L–14	do.	3·0	+	+
5.	L–16	do.	2·6	+	+
6.	B–1	Isolated from Bragg variety	2·6	+	+
7.	B–2	do.	2·6	+	+
8.	B–5	do.	1·0	+	+
9.	B–6	do.	1·0	–	–
10.	B–11	do.	1·0	–	+
11.	B–12	do.	3·0	+	+
12.	A–3	Isolated from Ankur variety	3·0	+	+
13.	A–7	do.	3·0	+	–
14.	A–9	do.	1·0	–	+
15.	A–10	do.	2·6	+	+
16.	A–16	do.	3·0	+	–
17.	A–18	do.	1·6	+	+
18.	G–3	Isolated from Geduld variety	3·0	–	+
19.	G–4	do.	2·6	+	+
20.	G–7	do.	2·0	+	+
21.	G–13	do.	2·3	–	+
22.	G–16	do.	3·0	–	+
23.	C–3	Isolated from Clark–63 variety	2·6	+	+
24.	C–6	do.	3·0	+	+
25.	C–10	do.	1·3	+	+
26.	C–11	do.	1·0	+	+
27.	C–12	do.	1·0	+	+
28.	C–18	do.	3·0	+	+
29.	K–8	Isolated from Kalitur variety	3·0	+	+
30.	K–11	do.	3·0	+	+
31.	K–17	do.	3·0	+	+
32.	K–19	do.	3·0	+	+
33.	K–26	do.	3·0	+	+
34.	K–28	do.	3·0	+	+
35.	SB–16	Standard culture (IARI) isolated from the nodules after passing through Bragg variety of soybean	3·0	–	+

(–) Nodules not formed. (+) Nodules formed.

2. All except three strains produced nodules on cowpea (*Vigna aureus*) var. C-152 which confirm earlier findings[2,4,5].

3. Interestingly enough, twenty-seven of these strains of *R. japonicum* also nodulated pigeon pea (*Cajanus cajan*) var. Prabhat which is a new finding worth recording.

4. Of the three strains (B-6, A-7, A-16) which did not nodulate cowpea, it was interesting to observe that A-7, A-16 could nodulate pigeon pea whereas strain B-6 isolated from Bragg variety did not nodulate the same.

Similarly, strains B-11, L-2, A-9, G-3, G-13, G-16, SB-16 which nodulated cowpea did not nodulate pigeon pea. These results point out that there are strains of *R. japonicum* which can differentially nodulate cowpea and pigeon pea.

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TISSUE LACTIC DEHYDROGENASE ISOENZYME ACTIVITY IN THE DIFFERENTIAL DIAGNOSIS OF TUMORS AND OTHER SPACE OCCUPYING LESIONS OF BRAIN

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An increase in different metabolic enzyme activities in CSF of patients with a variety of disorders of central nervous system, presenting clinically as a space occupying lesion, led to the search for a characteristic biochemical pathology in the tissues which is responsible for this manifestation[1]. Of the various enzyme systems, lactic dehydrogenase (LDH) and its isoenzyme pattern has been investigated in brain tumor tissue with a view to differentiate this neoplastic lesion biochemically, from the non-neoplastic space occupying lesions of the brain. Brain tumors have a greater tendency to employ anaerobic glycolysis, and there is a shift of 'heart pattern' of LDH isoenzymes to 'liver pattern' along with an increase in total activity. These findings have been shown both in neuronal and glial tumors[2]. The degree of shift has been shown to correspond with histopathological grading of the tumors[3]. We have attempted to evaluate the utility of this methodology in predicting the biological behaviour of various histological types of tumors. The present paper reports observations made during studies on LDH and its isoenzyme pattern in histologically verified neoplastic and non-neoplastic lesions of the brain.

Materials and Methods

During the neurosurgical procedure, biopsy material taken from cases of space occupying lesions of the brain for histopathological diagnosis formed the source of the tumor material. Brain tissue removed at autopsy within 4 hours of death, from a case of road accident dying of non-neurological cause, a case of infarction of brain, two cases with tuberculous meningitis and a case of ischemia of brain formed the source of control and non-neoplastic pathological tissue of the nervous system.

The tumor material was obtained within 15 minutes of removal from the patient. The tissues were washed in cold buffered saline (pH = 7·4), one half of the material was used for biochemical analysis while the other half was submitted for histopathological study.

The histopathological and biochemical investigations were carried out in two different laboratories and the results were compared subsequently. The biochemical examination was carried out by making a 10% homogenate of all the tissues in glass-distilled water at 4° C.

Methodology

The total LDH was estimated by the usual method of measuring the change in absorbance of NADH at 340 nm in the presence of pyruvate at 25° C by using Gilford Stasar—III System—4. The activity is expressed as units/L (of 10% homogenate). For isoenzyme separation the homogenate was centrifuged at 7000 rpm for 10 minutes and the supernatant was applied on a cellulose acetate membrane. Along with tissue homogenate, a standard preparation of LDH is spotted for reference (murine tissue extract of heart and brain in sucrose and human serum solution). The isoenzymes were electrophoretically separated by using Beckman microzone electrophoresis