phatase activity. The results also confirm the observation given in Fig. 1.

We also determined the number of multiple forms of acid phosphatase activities as separated by electrophoresis on a polyacrylamide gel, carried out using 7% gel[6] at 10 volt per tube for nearly five hours. After the run was over, the gels were stained for phosphatase activity according to Brewer[3]. The three tubes A, B and C (Fig. 2) represent the three gels with different pH of the gel buffer (pH 8·5, 7·0 and 5·0). Acid phosphatases are separated best on the gels having pH 8·5. The results indicate that at pH 8·5, there are at least 5 different forms of acid phosphatase activity. However, one cannot rule out the possibility of the presence of more species of acid phosphatase activity in No. 1 and 4 bands in tube A of Fig. 2.

It is now well established that a large number of enzymes exist in multiple forms. Isozymes are the examples of these multiple forms. According to Shaw[7] isozymes may be classified into two major categories: (*a*) distinctly different molecules, presumably produced from different genetic sites, and (*b*) those which result from secondary alteration in the structure of a single polypeptide species. For classification of different isozymes of acid phosphatase found to be present in the cotyledons of *Vigna sinensis*, detailed immunological studies are required because of the difficulty of getting conditional mutants in eucaryotic systems. For detailed immunological studies, the separation and purification of different isozymes to homogeneity is a prerequisite. The work on the purification of different isozymes present in the cotyledons of germinating seeds of *Vigna sinensis* (Linn.) Savi are in progress.

Our preliminary results indicate that there is distinct change in the zymogram pattern of acid phosphatase activities present in cotyledons of the seeds of *V. sinensis* with the change in germination period and environmental conditions (Results not given). This change in zymogram may be exploited to monitor the gene expression during germination.

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SOME NOVEL SPRAY REAGENTS FOR NATURALLY OCCURRING HIGHER FATTY ACIDS AND THEIR METHYL AND ETHYL ESTERS

A NUMBER of spray reagents are used for detecting the presence of fatty acids and their methyl and ethyl esters[1-3]. These reagents very often do not produce pronounced colour. With a view to find out some new spray reagents which could produce pronounced colours with fatty acids and their esters, the present investigation was carried out. The fatty acds and their esters (20 μg each) were app'ied on Whatman No. 1 filter-paper strips (30 × 10cm) impregnated with 2% olive oil solution in benzene[4] and the chromatograms were developed by descending technique using a mixture of ethanol and water (9 : 1 v/v) as irrigating solvent. The developed chromatograms were dried in air and treated with the spray reagents (1) 0·5% fluorescene in ammonium hydroxide and then with 0·5% aqueous uranyl acetate (or uranyl nitrate) or (2) 1% aqueous cupric acetate and then with 0·1% aqueous rhodmine B solution or (3) 0·5% aqueous uranyl acetate (or uranyl nitrate) and then with 1% aqueous bismuth iodide solution or (4) 0·5% aqueous uranyl acetate or uranyl nitrate and then with 1% aqueous potassium ferrocyanide solution or (5) 0·1% aqueous rhodamine B solution only. The coloured spots appear instantaneously. In visible light the reagents 1 & 3 gave yellow colour, 2 gave violet colour, 4 gave greenish brown colour and 5 gave bright pink colour whereas in UV light 1 gave shining yellow colour, 2 gave bluish pink colour, 3 gave violet colour, 4 gave brown colour and 5 gave pinkish orange colour. The R_f values of the acids and their esters were oleic acid, 0·04; stearic acid, 0·16; palmitic acid, 0·21; myristic acid, 0·52; ethyl stearate, 0·87; ethyl oleate, 0·28; methyl palmitate, 0·85; and ethyl myristate, 0·32.

The above paper chromatographic procedure has also been extended successfully to quantitative estimation of fatty acids and their methyl and ethyl esters

colorimetrically in a klett summerson photoelectric colorimeter using blue filter (420 nm).

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XYLIA DOLABRIFORMIS: AN INDICATOR TO GABBRO BODIES

THE study reports the occurrence of *Xylia dolabriformis* as a geobotanical guide for locating gabbro bodies in parts of Goa. It is suggested that LANDSAT pictures and aerial photographs can be used to demarcate gabbro bodies with the help of this species.

During the course of investigations on mafic and ultramafic rocks from parts of Goa, the author has come across a plant species identified as *Xylia dolabriformis* belonging to family Leguminosae. The author reports for the first time its association with gabbro bodies and suggests the use of satellite pictures and aerial photographs in locating gabbro bodies with the help of this species.

Detailed field investigations of parts of Goa (14° 49′ to 15° 52′ N and 73° 38′ to 74° 24′ E) assisted by remote sensing tools like LANDSAT pictures on 1 : 270,000 and aerial photographs on 1 : 60,000 scale have shown that, the Goa area is mainy occupied by Dharwar metasediments and granite gneisses. The metasediments are at places intruded by basic and ultrabasic rocks mainly in the form of stock-like intrusives, dykes and sills. The basic and ultrabasic bodies are invariably covered by a thick mantle of soil at least in their lower reaches and in the surrounding areas. They, therefore, support a dense flora which gives a definite spectral signature marked by dark tone on band No. 5 and light grey tone and medium texture on aerial photograph. Such areas can, therefore, be very easily detected and delineated from the comparatively sparsely vegetated surrounding areas which usually exhibit a thick cover of laterite and hence show a different spectral signature, tone and texture on LANDSAT picture and aerial photograph respectively.

It has been observed during the field checks that although all the basic and ultrabasic bodies, in general, support the growth of *Xylia dolabriformis* the gabbro bodies in particular exhibit a thick and luxuriant growth. This has been observed by the author at different places, *viz.*, Sanguem, Tilamol, Dharbandora, etc.

Xylia dolabriformis locally known as jambo yerul belongs to the family Leguminosae (Vartak[2]). They constitute middle sized trees less than 15 metres tall growing in moist desiduous semi-ever-green forests. Flowers are yellowish-white in colour. Flowering time is March to April and fruiting time May to December. Use of LANDSAT pictures in band Nos. 6 and 7 taken in different seasons highlighting foliage and inflorescence is likely to demarcate the gabbro bodies with the help of different spectral signatures in a convenient manner. Similarly coloured aerial photo coverage during inflorescent season will also be of great help in delineating the gabbro bodies.

Economically this variety is very important as the wood is hard and resistant to bacterial attack and hence used for railway slippers and construction purposes; also used as timber for furniture and agricultural implements. Knowing the geology of an area it would be easier to look for the same. Similarly as it gives a definite spectral signature on satellite picture and a marked tone and texture on aerial photograph, it could be used as a guide in locating gabbro bodies in densely forested virgin areas. Such information is of great use as the gabbro bodies sometimes constitute host rocks for important economic mineral deposits like those of chromium, copper, nickel, etc. This information can thus, be of great help to exploration geologists in adjoining areas in recognition of rock types. However as pointed out by Mogg[1], vegetation should be interpreted with caution as the same rock type may carry different flora in differen) areas.

Thus it may be concluded that the association of *Xylia dolabriformis* with gabbros, although cannot be universally applicable, can serve as a geo-botanical guide in case of the gabbro bodies occurring in Goa and surrounding areas.

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