

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 mainly 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 (Vartak²). 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 Mogg¹, vegetation should be interpreted with caution as the same rock type may carry different flora in different 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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