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STUDIES ON THE LIMESTONE VEGETATION OF SAHASRADHARA NEAR DEHRA DUN (U.P.)—7. PHYTOSOCIOLOGICAL STUDIES: COMMUNITY CO-EFFICIENT

The Sahasradhara area has a number of conspicuously different habitats, such as hill tops and slopes, both calcareous and non-calcareous. The vegetation of these diverse habitats were compared. This has been done by determining the community co-efficient of a number of stands (Oosting, 1956). The community co-efficient of the different stands are tabulated below:

Sl. No.	Stands	Community co-efficient
1.	Eastern hill top and western hill top	47.3
2.	Eastern non-calcareous and western non-calcareous slopes	47.95
3.	Eastern calcareous and western calcareous slopes	67.30
4.	Eastern ravines and western ravines	56.14
5.	Eastern calcareous and eastern non-calcareous slopes	41.02
6.	Western calcareous and western non-calcareous slopes	20.27
7.	Eastern calcareous and western non-calcareous slopes	23.82
8.	Western calcareous and eastern non-calcareous slopes	24.15

As can be seen from this table, the stands have been compared mainly to find out the effect of calcium, direction and topography on the vegetation.

The vegetation of the eastern calcareous and western calcareous slopes has the highest community co-efficient *i.e.* 67.30. This indicates fairly good resemblance between the two stands. Obviously it is the calcium rich rocks which are responsible for this similarity and the less difference is due to the topography of the eastern and western slopes. Similarly the ravines, which are under stress of immense erosion on either side also have a high community co-efficient *i.e.* 56.14. The community co-efficient of eastern and western top of the hillocks is only 47.03. This indicates greater difference and less resemblance. However, this is understandable

since the Timli village is situated on the eastern top and the vegetation of the area is under stress of intense human pressure. On the contrary, the vegetation on the western top is not easily accessible and is less disturbed and comparatively richer.

The community co-efficient of vegetation on calcareous and non-calcareous rocks on the eastern and western slopes differs markedly. They are respectively 41.02 and 20.27. The difference is expected on account of the different underlying strata. The author's field observations give a plausible explanation of this conspicuous difference. The dissimilarity in the other stands as indicated above (low community co-efficient) is obviously due to the different topography.

The eastern and western non-calcareous slopes have a still higher community co-efficient, which is 47.95 but the calcareous slopes on the eastern and western sides show even much greater similarity to each other which is evident from the high value 67.30 of the community co-efficient.

The eastern and western ravines also show similarity as is evident from the high value of community co-efficient, which is 56.14.

The vegetation on the calcareous and non-calcareous slopes, however, show a lot of dissimilarity. Thus the community co-efficient of the two stands on the western calcareous slopes and western non-calcareous slopes is only 20.27. However, the community co-efficient of the eastern calcareous slopes and the eastern non-calcareous slopes is 41.02, which is higher than that on the western calcareous and non-calcareous slopes described above.

It was observed that on the western slopes, the calcareous and non-calcareous rocks are completely isolated from each other on account of the presence of deep ravines cutting vertically downwards between the two. Thus the two underlying rocks are

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quite distinct. The vegetation on the two is quite different and community co-efficient is low *i.e.* 20.27. On the eastern slopes, however, the calcareous rocks lie higher up, while the non-calcareous rocks are situated immediately below them. Thus a lot of calcium from the higher calcareous rocks flow down year after year and serves to decrease the difference between the strata which is also reflected in lesser dissimilarity in the vegetation they support.

The community co-efficient of the eastern calcareous slopes and the western non-calcareous slopes is low 23.82. This shows, that the two stands are conspicuously dissimilar. This is obviously due to the edaphic factors *e.g.* the calcium rich and calcium deficient substrata and may be partly on account of direction.

The community co-efficient of the western calcareous slopes and the eastern non-calcareous slopes is 24.15, almost the same as that of the preceeding

stands and obviously the same explanation holds good for their dissimilarity.

REFERENECES

OOSTING, H. J. *The study of plant Communities—An introduction to plant ecology.* W. H. Freeman & Co., San Fransisco, ed. 2. 1956.

OBERONIA SEIDENFADENIANA JOSEPH ET VAJRAVELU—A NEW SPECIES OF ORCHID FROM ANAMALAI HILLS, SOUTH INDIA

Oberonia seidenfadeniana Joseph et Vajravelu sp. nov.

O. platycaulon Wt. affinis sed distinguibilis praesertim lobo labelli mediano multo minore quam lobos laterales, quardrangulare et ad spicem truncato et nequaquam lato, ovate vel trilobulato.

Planta parva caespitosa epiphytica, super racemos exiles parvorum arborum. *Folia* disticha, articulatus, gradatim ex basim versus apicem majora, 4-7, ensiformia, equitantia, luteo-viridia, crassa ; folium minimum ± 2.0 × 0.4 cm, maximum vero ± 6-10 × 0.7-1.5 cm. Inflorescentia 11-19 cm longa scapo erecto, spica paululo arcuata. *Scapus* compressus, brevior, aequalis vel longior quam folium terminale, 4-10 × 0.4-0.8 cm, subtentusque bractea parva et falcata. *Spica* 8-11 × ± 0.5 cm, cylindrica, in caudam sterilem attenuata. *Flores* aurei, sessiles, laxe imbricantes, erecti, ad axim appressi. *Bracteae* ± 3.0 × 1.5 cm, lanceolatae, ad marginem irregulariter dentatae, ad apicem breviter acuminatae, ovarium arcte cingentes, erectae, persistentes, glandulosae, puberulae. *Sepala* ± 2 × 1 mm, ovata, super ovarium reflexa, 1-nervia, ad apicem mucronata. *Petala* sepala aequantia vel breviora, multoque angustiora, super ovarium reflexa, lanceolata 1-nervia, obtusa. Labellum erectum, crassus, trilobatum ± 2.0 × 3.5

mm ; lobi laterales multo majores quam lobum medianum, columnam cingentes et invicem imbricantes, 3-nerves adaxialiter 3-crestis, ad marginem erosa, glandulo-punctata ; lobus medianus parvus, quadrangularis, erectus, ad apicem truncatus, integer (vel sinu vado). *Columna* brevis. *Capsula* ± 7.0 × 3.5 mm, breviter pedicellata, perianthio marcescente, prominenter 6-costata.

Holotypus *Joseph* 17476-A (CAL) et isotypi (MH) *Joseph* 17476 B-L, lecti in Andiparaishola (alt. 1350 m) supra faciem orientalem montis Anamalai, regionis Coimbatore, Tamilnadu, die 22 Septemberis 1962.

Oberonia seidenfadeniana Joseph et Vajravelu sp. nov.

This is allied to *O. platycaulon* Wt. but distinctive mainly in the midlobe of the lip being much smaller than the sidelobes, quadrangular and truncate at apex instead of being large, ovate and trilobulate.

Small, caespitose epiphytic orchid, on slender branches of small trees. Leaves distichous, jointed at base, progressively larger from base upwards ; 4-7, ensiform, equitant, yellowish-green, thick, smallest ones ± 2.0 × 0.4 cm, largest ones ± 6-10 × 0.7-1.3 cm. *Inflorescence* 11-19 cm long with an erect