

# Phytosociological Studies on the vegetation of Some Satana forest of Nashik District, Maharashtra: Maturity Index

**J.T. Jadhav**

Department of Botany, M.S.G.College, Malegaon camp, Dist-Nashik

**Abstract:** Maturity index provides the information about the maturity of the forest community and species dominant within the community. From the study it can be observed that the degree of maturity is less at stand No-1 and highest at stand No-4 in Satana forest followed by stand No-3 and 2. It is often found that with increase in dominance the diversity decreases. The degree of stabilization of maturity of a plant community which undergoes a series of different communities developing successively in an area leading to a climax community was determined by maturity index.

**Key words:** Phytosociology, Maturity Index, Satana, Maharashtra.

## INTRODUCTION

Phytosociological studies deals with qualitative study of the structure of the vegetation with an emphasis on quantitative relationship of few species which are to be dominant on the belief that these largely control the community and there by the occurrence of a large number of rare species.

## MATURITY INDEX

Maturity index provides the information about the maturity of the forest community and species dominant within the community. From the study it can be observed that the degree of maturity is less or high in forest. Pichi-Sermolli (1948) suggested an index for the establishment of the maturity in plant communities based on the frequency percent of all species in the stands of a community. The principle is the long accepted notion that higher the frequency percent of each species and smaller the number of sporadic species, the more mature is the community. The Index of maturity of each stand is compared with other stands to establish the general maturity of the community.

As author (J.T.Jadhav) aware, there detailed accounts on the Phytosociology of Chotaudaepur forests (Shah, Yadav and Parabia, 1979), Panchamahals (Shah and Bhatt, 1980), Dangs Forests (Yadav, 1979), From Maharashtra Tryambakeshwar, Vani and Saptashringi (Jadhav and Yadav, 2004), Talegaon (Jadhav, 2016), Sapgaon (Jadhav, 2018), Tryambakeshwar forest (Jadhav, 2019), Tryambakeshwar (Jadhav, 2020), Vani forest (Jadhav, 2020). Similar investigation is carried out in 4 stands of Satana forest with a view to study the maturity of the forest community, species dominant within the community and the degree of maturity is less or highest in forest.

## AREA OF STUDY

Nasik District is situated in north western part of Maharashtra. It lies between 19°35' and 20°50' N and between 73°16' and 74°56' E. Satana is at 20° 34' 48" N, 74° 13' 12" E and 95 km distance from District Headquarter Nasik. Sometimes Baglan Taluka is unofficially referred to as Satana, because of that city's dominance within the taluka. The total study area is 847.69 hectares.

## METHODOLOGY

Four stands located randomly throughout the study area in the Satana forest. Quadrats of 10 x 10 m were laid down in different directions in forest, so that quadrats represented almost all species in the area. All together 20 plots (covering 2000 Sqm.) are laid down. Frequency (%) was calculated by the formula given by Raunkiaer (1934).

Maturity index is based on the frequency percentage of all species in the stands of community. It is obtained by adding the frequency percentage of all species in a stand and dividing this sum by the total number of species in the stand (Pichi-Sermolli, 1948).

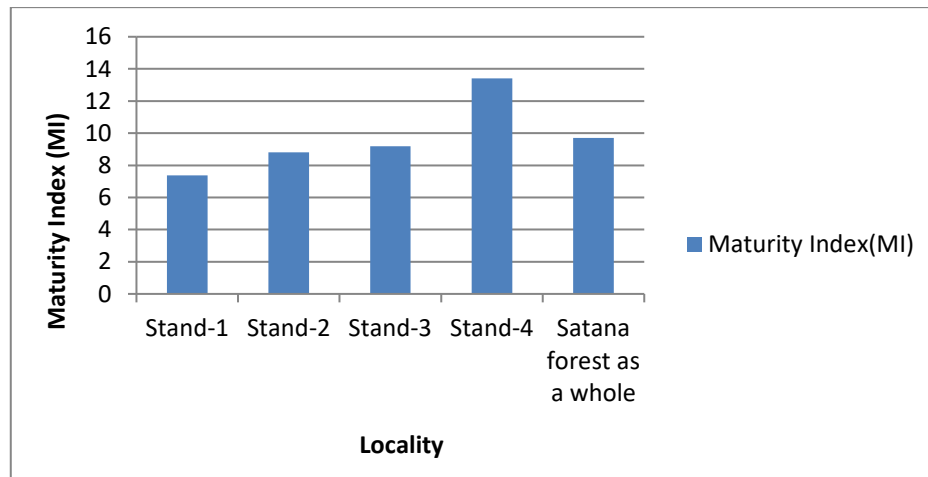
## RESULTS

TABLE I. Showing the 4 stands and their Maturity Index.

Sr.No	Localities	Maturity Index (M.I.)
1	Stand No. 1	7.37
2	2	8.81

3	3	9.19
4	4	13.42
Total		38.79
Average M.I.		9.70

FIG I. Showing the Comparative histogram of Maturity Index stand wise (4) and Satana forest as a whole.



## CONCLUSION

Maturity index provides information about the maturity of the forest community. It also impresses up on the dominance of specie within the community. From Table I, it can be seen that the stands 3 and 4 are showing maximum maturity index where as other stands are within much less maturity index. This can be attributed due to the factors operating upon the vegetation on some patches and stands which are showing highest maturity index. It can also be seen that the average Maturity Index of satana forest is higher except stand No-4. From FIG I: Showing the histogram of Maturity Index. It can be seen that highly matured vegetation is in the stands of 3 and 4. The average Maturity Index (9.70) is higher than stand 1,2 and 3. The Maturity Index (M.I.) value at Satana forest shows that as a whole these are

1. Still under the process of succession: At stand No-1 maturity value is 7.37.
2. Moderately mature: Stand No 2 and 3 shows the maturity index values 8.81 and 9.19 respectively.
3. The highest degree of maturity index: stand No. 4 (13.42) indicates that the community is more stable and the disturbance to the vegetation by biotic influence is less. Satana forest has the highest average maturity value index (9.70).

## ACKNOWLEDGEMENT

Author (**J.T. Jadhav**) thanks UGC (WRO) Pune, for financial assistance and Respected **Dr.Prashant Dada Hiray**, General Secretary, **M.G.Vidyamandir**, Nashik for encouragement.

## REFERENCES

- [1]. Jadhav, J.T. Phytosociological studies on the vegetation of Trimbakeshwar, Vani and Saptashringi forests of Nashik District Maharashtra, Maturity Index. Ecol. Env. & Cons. Enviromedia, 2004, 10(1), 87-90.
- [2]. Jadhav, J.T. Phytosociological studies on the vegetation of Talegaon forest of Nashik District (Maharashtra). Researchers World- International Refereed Research Journal, 2016, VII, 14-17.
- [3]. Jadhav, J.T. Phytosociological studies on the vegetation of Sapgaoon forest of Nashik District (Maharashtra). Researchers World, International Refereed Research Journal, 2018, IX, 194-196.
- [4]. Jadhav, J.T. Phytosociological studies on the vegetation of Tryambakeshwar forest of Nashik district (Maharashtra), India. Research Journy- International Multidisciplinary E- Research Journal, 2019, Special Issue-98, 83-87.
- [5]. Jadhav, J. T. Maturity Index of Tryambakeshwar forest of Nashik District, Maharashtra. IJRCS, 2020,4,(4) 200-202.
- [6]. Jadhav, J. T. Maturity Index of Vani forest of Nashik District, Maharashtra (India). Purakala 2020, 31(4), 1268-1272.
- [7]. Pichi –Sermolli. An index for establishing the degree of maturity in plant communities. J.Ecol. 1948, vol 36: 85-90.
- [8]. Shah, G.L. and R.G.Bhatt, Phytosociological studies of the forests of Panchamahals district in Eastern Gujarat, Indian J.For, 1980, 3 (1), 47-53.
- [9]. Shah, G.L. Yadav, S.S. and Parabia, M.H. Phytosociological studies on the Vegetation of Chotaudepur forest division, Eastern Gujarat. J. Indian Forestry, 1979, I: 312 – 318.
- [10]. Jadhav, J.T. Phytosociological studies of the flora of Trymbakeshwar and Vani (Saptashringi) Nashik District. Ph.D. Thesis, 2002, North Maharashtra University, Jalgaon, Maharashtra.
- [11]. Raunkaiaer, C. The life forms of plants and Statistical plant Geography. The Clarendonpress Oxford. 1934, 632
- [12]. Yadav, S.S. A contribution to the floristic and Phytosociology of some parts of South Gujarat. Ph.D.Thesis.Part-II. 1979, Saradar Patel University, VallabhaVidhyanagar.