

GEOCHEMISTRY OF UPLAND LATERITES OF TARALE - THOSEGHAR PLATEAU OF BAMNOLI RANGE OF SATARA DISTRICT OF MAHARASHTRA, INDIA

R.V. Desai^{*1}, J.V. Khanapurkar², R.A. Suryawanshi¹

¹*Department of Geology, Yashwantrao Chavan College of Science, Karad*

²*Department of Geology, Gopal Krishna Gokhale College, Kolhapur*

**Email id- rajeshdesai27geology@gmail.com*

Abstract

Bamnoli range covers the western part of Satara and Patan taluk of Satara districts and mainly consist of hard lateritic plateaus with an altitude of more than 1000 m. Laterites of in study area are formed due to intense chemical weathering of the parent basalt. The transformation of basalt to laterite is traced by studying major and trace elements from different horizons and their inter-relation plots exhibit differential mobility of elements. X-ray diffraction and Infrared Spectroscopy of the plateau laterite and lithomarge clay samples indicate the presence of hematite, goethite, maghemite, kaolinite, gibbsite, quartz, ilmenite and rarely montmorillonite, metahalloysite. Wt % of Fe₂O₃, Al₂O₃ and SiO₂ in the laterites of the study area ranges between 35.61- 51.69, 13.23- 22.90 and 14.81- 19.75 respectively. Ratio of SiO₂/Fe₂O₃ in laterites is less than 1.33 which indicates that the laterites of the study area are true laterites and plots in the ternary diagram (SiO₂-Fe₂O₃-Al₂O₃) indicate moderate to strong zone of lateritisation. CIA values for the laterite of the study area range between 98.88- 99.16, while slightly lower values of CIA (94.48- 98.06) is observed for the lithomarge clay samples. A cluster of laterite plots have been formed when SiO₂, Fe₂O₃, TiO₂, and CaO is plotted against CIA. The best linear correlation is observed for Na₂O and LOI. Two distinct zones of laterite and lithomarge clay are formed when CIA is plotted against Al₂O₃. The average product index (PI) of laterite is 20.80 and that of lithomarge clay is 42.56, which indicates more intense leaching of silica and other oxides in the duricrust laterite than lithomarge clay.

Keywords: Bamnoli range, Laterite, Lithomarge clay, Basalt, XRD, IR, XRF, CIA, PI.