

OCCURRENCE, DISTRIBUTION AND GRAIN MICRO-TEXTURES OF LIGHT HEAVY PLACER MINERALS IN THIRUCHENDUR-OVARI BEACHES, SOUTH-EASTERN COAST OF INDIA

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Abstract

An uplifted coastline of about 40 km stretch of the south-eastern coast of India (Thiruchendur - Ovari coast) is studied for the spatial distribution of heavy minerals and their depositional environment. Samples from 40 locations (along the berm region) were mineralogically assessed. The estimated total heavy mineral weight percentage (THM%) was around 21.59% for all sampling stations. It has been observed that the THM% is comparatively lesser near Thiruchendur (0.59%) (north of the study area) and richer near Ovari (74.33%) (south of the study area). The distribution scenario indicates that minerals like garnet, sillimanite, ilmenite percentage is high in medium, fine, very fine fractions. The separated mineral grains were counted through optical microscopic studies for mineralogical identification. Grain morphological studies reveal characteristics of the depositional environment as well as the mode of transport through micro features caused by various energy conditions. Maps showing the spatial distribution of heavy minerals along the entire study area were also prepared by using Inverse Distance Weighted (IDW) interpolation technique in ArcGIS software.

Keywords: Depositional environment, grain morphology, mineral distribution, SEM, Total heavy minerals.