Gastropods (Provannidae family). The present study enhances potential aspects like envisaging the fishery productivity and trophic structure. It also advocates for further investigating the relationship between deep-sea chemosynthetic ecosystems and economically valuable species. Although we could capture the seabed images along with the demersal organisms, some additional improvements, such as a rise in light intensity and usage of the cruise with a dynamic positioning system, can enhance the video quality. Scaling of the objects will be done in future expeditions. Coupling multiple sensors to monitor various parameters such as depth, temperature, pressure and salinity may give wider information regarding cold seep communities.

Conclusions

The newly developed underwater camera and light assembly is a significant advancement in cost-effective underwater videography and photography. This indigenously built system has been successfully operated in the deep-sea (at 1756 mbsl) on board the CSIR-NIO vessel (*RV Sindhu Sankalp*) and completed one term of investigation of typical targets such as cold seep region. A dynamic positioning system in our research vessel (*RV Sindhu Sadhana*) coupled with additional camera light sources are expected to significantly boost the stability and clarity of visuals for high-resolution seabed and water column operations. This setup has the potential to be commercially operational for multiple underwater studies.

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A note on spodumene bearing pegmatite of Chhotanagpur granite gneiss complex, Garhtara–Dhangaon area, Korba district, Chattisgarh

Garhtara–Dhangaon area is located about 25 km north-east of Korba, Chhattisgarh, T.S.64J/10 (Figure 1). The area lies in the south-western part of Chhotanagpur Granite Gneiss Complex (CGGC) about 25 km south of Tan Shear Zone. Granite gneiss and granitoids containing enclaves of schist, quartzite and amphibolite of CGGC intruded by pegmatitic and aplitic injections are exposed in the area. The pegmatites in the area are simple, homogenous, unzoned, trending northeast–southwest, northwest–southeast and exposed intermittently over an area of 3 km × 1 km. The pegmatites are leucocratic, have a purplish shade, and are inequigranular. The dimensions of pegmatite injections range from 10 to 25 m in length and 1 to 2 m in width, intruding into pink and grey granite.

Petrographically, the granite pegmatites are medium to coarse-grained, showing a hypidiomorphic interlocking texture. They are massive and devoid of any preferred orientation. The pegmatites mainly comprise plagioclase, quartz, perthite and muscovite, which are essential minerals, and spodumene and lepidolite, which are lithium (Li)-bearing mineral phases. Modal percentage composition of rock suggests 28% plagioclase, 22% quartz, 20% spodumene, 12% muscovite, 10% perthite and 8% lepidolite. Spodumene occurs as subhedral tabular crystals showing two sets of perpendicular cleavages and partings (Figures 2 *a* and 3 *a*). Lepidolite occurs randomly as radiating flakes with higher order interference colour (Figures 2 *b* and 3 *b*). The grain size of spodumene and lepidolite ranges up to 1.5 mm and 1.2 mm respectively.

Granite pegmatite samples chemically analysed ($n = 26$) 10 to 10,333 ppm lithium (average of 4499 ppm). Presence of spodumene, lepidolite, columbite, monazite and bearsite (Be–As mineral) in the granite pegmatites are also confirmed by X-ray diffraction (XRD) analysis in Atomic Minerals Directorate for Exploration and Research (AMD), Hyderabad (Figure 4).

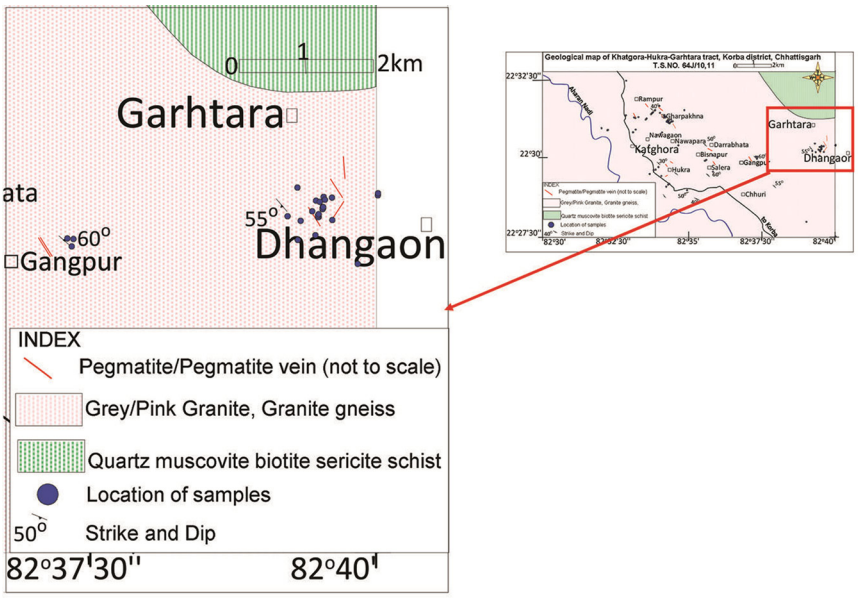

Figure 1. Geological map of Khatgora–Hukra–Garhtara tract, Korba District, Chattisgarh, T.S.64J/10.

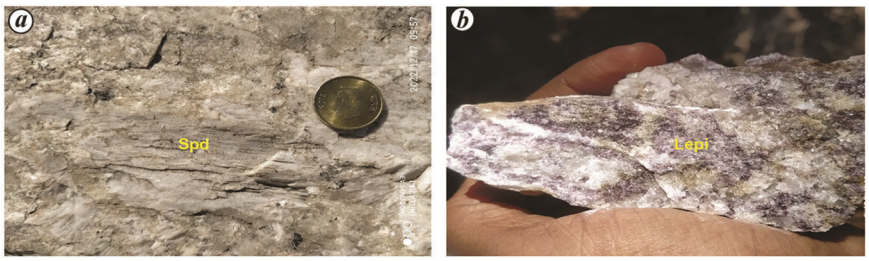

Figure 2. Hand specimen of spodumene and lepidolite bearing pegmatite.

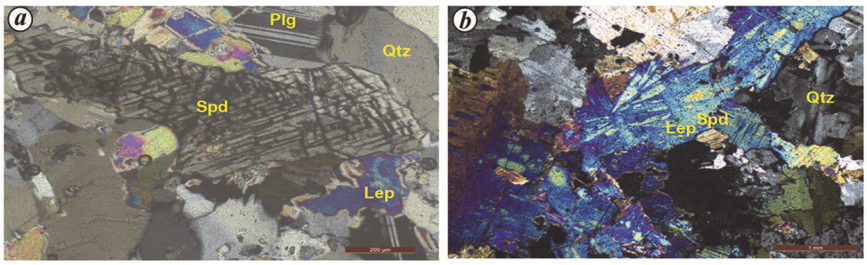

Figure 3. Photomicrographs showing association of spodumene and lepidolite in pegmatite, TL, 2N.

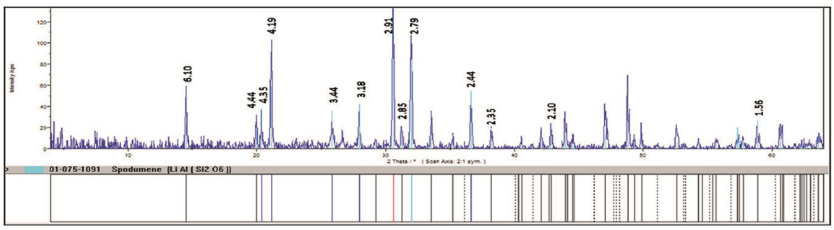

Figure 4. Diffractogram showing corresponding inter-planner spacing (*d*-values) of spodumene from study area. Spodumene peaks of PDF file 01-075-1091 are also enclosed.

The occurrence of lithium mineralization in the form of lepidolite and Li-mica within peraluminous granite was reported by Geological Survey of India (GSI) near Katghora area[1]. However, Spodumene is reported for the first time from Garhtara–Dhangaon areas, which occurs at 35 km southeast of GSI reported area[2]. In addition to Li, pegmatites of the Garhtara–Dhangaon area are also enriched in Nb (40–102 ppm), Cs (85–617 ppm), Ta (22–58 ppm), Be (50–232 ppm), W (23–42 ppm) and Sn (30–90 ppm). Thus, the Garhtara–Dhangaon areas have a high potential to explore Li and other rare metals and rare earth element minerals.

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