

## **D-19: Distribution of heavy minerals in potholes in Badulu-Oya, Sri Lanka**

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Geochemical analyses of mineral concentration in potholes, integrated with surveys of heavy minerals, can be used effectively in the exploration of economic mineral deposits including sedimentary gem deposits. Potholes form in rocky beds of streams and are created by the grinding action of a partially trapped stone or stones or coarse sediments, whirled around and kept in motion by eddies. The types of heavy minerals in a particular catchment area can be identified by analysis of pothole contents.

Thirty five pothole samples were collected from Badulu-Oya and its tributaries. The study area consists mainly of high grade granulite facies rocks. The fraction between  $-177 + 125\mu\text{m}$  was used in the heavy mineral survey. Separation of heavy minerals was carried out by applying the gravity method using Bromoform and the magnetic method using the Frantz isodynamic separator.

Heavy mineral samples were mounted on grid-containing glass slides in Canada Balsam for identification. Counting was done under the microscope and several opaque mineral grains were identified by X-ray diffractometry.

The mean value as weight percentage of the heavy fraction is about 26%. Gem-quality minerals in the heavy fraction were zircon, tourmaline, spinel, sphene, and garnet. Rutile, Monazite, sillimanite, biotite, apatite, hypersthene and hornblende as well as opaque minerals such as pyrite, magnetite, and ilmenite were also present.

The survey indicates very high heavy mineral concentrations in Badulu-Oya and some of its tributaries. Chemical analysis of the pothole sediments will be extremely useful in locating valuable mineral deposits and in identifying potential gem-bearing areas.