

## **Geochemistry and characterisation of alluvial gold from the Jeli and Sokor areas, Kelantan**

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The geochemical and characterisation study was concentrated in 2 main areas where alluvial gold samples from Sungai Tadoh and Sungai Pergau, situated in Jeli, were collected together with alluvial gold samples from Sungai Tui, Sungai Sokor and Sungai Ketubong in Sokor, Kelantan.

The main purpose of the study is the characterisation of the gold deposits from these 2 areas with emphasis on their physical and chemical characteristics. The physical characteristics covered include morphology, shape and grain size. Whereas, the chemical characteristics include types of inclusions and the quantity of gold and silver in the gold grains from EPMA and microscopic studies.

The morphology and shapes of the gold grains of the study area as a whole ranges from subrounded to rounded, and therefore strongly suggest that the gold samples are alluvial gold in character except for the gold samples from Sg. Ketubong which are sub-angular. This is because the gold particles collected at Sungai Ketubong are very near the area of the mineralized gold veins. The sphericity of the samples collected in the Jeli area is classified as prismoidal, which is the dominating sphericity in this area, and this differs from the samples in the Sokor area which have sphericity that ranges from subdiscoidal to discoidal.

Gold grain size studies show that the samples from Sokor are fine grained which range from 0.1–0.3 mm for the lengths and the widths of the samples collected from Sg. Tui and Sg. Sokor as a whole, whereas the

grain size of the samples from Jeli are bigger with an average length of 0.7 mm for samples from Sg. Pergau. For samples from Sg. Tadoh, the average particle size is 0.8 mm long and 0.4 mm wide. As a whole, the samples from the Jeli area comprise grain sizes that are larger when compared to the samples from Sokor area.

EPMA studies show that the geochemistry of the gold grains are different for the 2 main areas. In the Jeli area, the 3 areas sampled in Sg. Pergau show average fineness values of 941.435, 922.624 and 911.224 respectively, while the 2 areas in Sg. Tadoh average 916.015 and 943.912 respectively.

In the Sokor area, the fineness values are less than 900.000 and the average fineness values show a larger spread, the 2 areas in Sg. Tui average 810.069 and 892.330 respectively, whereas the 2 areas in Sg. Sokor average 849.088.

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