

## EPMA study of heavy minerals in the Tekka area, Perak

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EPMA characterisation of heavy minerals in the tailings, *amang*, river concentrates and mineralised veins in the Tekka area in terms of their composition, abundances, distribution, inclusions and intergrowths have confirmed the presence of cassiterite, ilmenite, iron oxide, arsenopyrite, stannite, chalcopyrite, pyrite, sphalerite, galena, scorodite, and covellite. Further, the EPMA was able to differentiate rutile, topaz, xenotime, monazite, tantalite, columbite, wolframite and strüverite through X-ray mapping.

The EPMA was able to justify the occurrence of fine gold in fractures in cassiterite, wolframite and black tourmaline and identify lesser known minerals like stolzite ( $\text{PbWO}_4$ ), enargite ( $\text{Cu}_3\text{AsS}_4$ ) and ytrotungstite [ $(\text{Ce}, \text{Nd}, \text{Y})\text{W}_2\text{O}_6(\text{OH})_3$ ] and report for the first time in the Tekka area the occurrence of native bismuth, bismuthinite ( $\text{Bi}_2\text{S}_3$ ), matildite ( $\text{AgBiS}_2$ ) and mimetite [ $\text{Pb}(\text{AsO}_4, \text{PO}_4)\text{Cl}$ ].

The EPMA was able to identify inclusions of ilmenorutile, tapiolite, arsenopyrite and ilmenite in cassiterite besides confirming that the different colours of tourmaline found at Tekka is a reflection of their different Fe and Mg contents.

All the new information on the new mineral species and their related mineral associations have aided in the preparation of a more complete paragenetic sequence of the Tekka xenothermal deposit.

*Pencirian EPMA mineral-mineral berat di dalam tailings, amang, konsentrat sungai dan telentang pemineralan di kawasan Tekka terhadap komposisi, kelimpahan, taburan, inklusi dan salingtumbuhan mereka telah membuktikan kehadiran mineral-mineral seperti kasiterit, ilmenit, oksida besi, arsenopirit, stannit, kalkopirit, sfalerit, galena, scorodit, dan kovelit. Kajian lanjutan EPMA telah bezakan rutil, topaz, xenotim, monazit, tantalit, columbit, wolframit dan strüverit melalui pemetaan sinar-X.*

*Peralatan EPMA telah sahkan juga kehadiran emas halus didalam retakan didalam kasiterit, wolframit dan tourmalin hitam dan kenalpastikan mineral kurang biasa seperti stolzit ( $\text{PbWO}_4$ ), enargit ( $\text{Cu}_3\text{AsS}_4$ ) dan ytrotungstite [ $(\text{Ce}, \text{Nd}, \text{Y})\text{W}_2\text{O}_6(\text{OH})_3$ ] dan laporkan kali pertama di kawasan Tekka kehadiran bismut asli, bismutinit ( $\text{Bi}_2\text{S}_3$ ), matildit ( $\text{AgBiS}_2$ ) dan mimetit [ $\text{Pb}(\text{AsO}_4, \text{PO}_4)\text{Cl}$ ].*

*EPMA juga camkan inklusi-inklusi ilmenorutil, tapiolit, arsenopirit, dan ilmenit didalam kasiterit selain daripada tunjukkan warna berbeza tourmalin yang dijumpai di Tekka cerminkan perbezaan kandungan Fe dan Mg mereka.*

*Semua maklumat ini tentang spesies mineral baru dan hubungan diantara mineral-mineral lain telah membantu menyediakan jujukan paragenesis yang lebih menyeluruh untuk mendapan xenoterma Tekka.*