

Natural potential sources for mercury pollutions in Bulgaria Oleg VITOV and Irina MARINOVA

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Bulgaria falls into the global Mediterranean-Asian mercury band (Fedorchuk, 1983), which includes world-class mercury deposits Almaden (Spain), Monte Amiata (Italy) and Idria (Slovenia). This geochemical signature of the Bulgarian territory is marked by a lot of mercury occurrences; base metal deposits containing mercury minerals and stream sediments with cinnabar, gold amalgams and drops of mercury.

The known mercury occurrences are located in Western and Southern Bulgaria and are of the following types: quartz-carbonate-barite, quartz-carbonate-argillite, quartz-chlorite-sericite, quartz-dickite, jasperoid, listwanite, alunite-opalite, opalite-argillic, travertine (Todorov, Fedorchuk, 1986). The deposits and occurrences of base metals containing mercury minerals are copper-lead-zinc strata-bound and stratiform; silver-lead metasomatic; lead-zinc vein and metasomatic; pyrite, copper-pyrite and gold-copper-pyrite; quartz-gold; fluorite and stibnite ones. Mercury is present as cinnabar and metacinnabar (HgS), balkanite ($\text{Cu}_9\text{Ag}_5\text{HgS}_8$), parashahnerite (Ag_3Hg_2), mercurian tetrahedrite, silver and gold amalgams (Atanasov, 1969; Atanasov, 1971; Atanasov, Kirov, 1973; Atanasov, 1975; Dragov, Obretenov, 1974; Atanasov et al, 1988, Vitov, Marinova, 2007, etc).

in the stream-sediment pan-concentrated samples studied the cinnabar frequency is 0.64%, which is an indication that 711 km² of the Bulgarian territory there are possible mercury polluters. The halos of mechanical dispersion of cinnabar are concentrated in Western and Southeastern Bulgaria. Minerals, which correlate positively with cinnabar in the stream sediments, are gold, barite, galena, secondary lead, massicot, malachite, scheelite, anatase, leucosene and zircon (Vitov, Marinova, 2005, 2007). Besides cinnabar, the stream-sediment pan-concentrated samples contain gold amalgams and drops of mercury (Atanasov et al, 1988).

The mercury in some Bulgarian regions is a natural potential source for mercury pollutions.

Keywords: Mercury, mercury pollutions, Bulgaria

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Bulgaristan'da cıva kirliliği yaratabilecek potansiyel doğal kaynaklar

Bulgaristan, dünya ölçeğindeki Almaden (İspanya), Monte Amiata (İtalya) ve Idria (Slovenya) cıva yataklarını içeren küresel Akdeniz-Asya cıva bandı içinde yer alır. Bulgaristan topraklarının bu

jeokimyasal damgası, çok sayıda cıva oluşuđu (cıva mineralleri ieren baz metal yatakları; zinober, cıvalı altın karışımları ve cıva damlaları ieren akarsu sedimanları) ile belgelenir

Bilinen cıva zuhurları batı ve gúney Bulgaristan'dadır ve kuvars-karbonat-barit, kuvars-karbonat-arjilit, kuvars-klorit-serisit, kuvars-dikit, jasperoid, litswanit, alunit-opalit, opalit-arjilik, traverten tiplerdedir (Todorov ve Fedorchuk, 1986).

Cıva mineralleri ieren baz metal yatakları ve zuhurları, Cu-Pb-Zn tabaka uyumlu ve tabakalı; Ag-Pb metasomatik; Pb-Zn damar ve metasomatik; pirit, Cu-pirit ve Au-Cu-pirit; kuvars-Au; fluorit ve stibnit oluşuklarıdır. Cıva, zinober ve metazinober (HgS), balkanit (CuAg₂HgS₂), paraşahnerit (Ag₂Hg₂), cıva tetrahedrit, gümüş ve altın karışımları olarak bulunur (Atanasov, 1969), Atanasov, 1971; Atanasov ve Kirov, 1973; Atanasov, 1975; Dragov ve Obretenov, 1974; Atanasov ve diđ., 1988; Vitov ve Marinova, 2007 vb).

Akarsu sedimanlarmda alıřılmış olan tümüyle konsantre örnekler zinober bolluđunu % 0.64 olarak verirler; bu deđer, Bulgaristan topraklarının 711 km²'lik bölümünde muhtemel cıva kirleticileri varlıđının göstergesidir. Zinobere iliřkin mekanik saçınım halkaları batı ve gúneydođu Bulgaristan'da yoğunlaşmıştır. Akarsu sedimanlarmda zinober ile pozitif korelasyon sergileyen mineraller, altın, barit, galen, ikincil kurşun, massikot, malahit, řelit, anataz, lökoksen ve zirkondur (Vitov ve Marinov, 2005; 2007). Akarsu sedimanlarmdan alınan tam-yođunlaşmalı örnekler, zinoberin yanı sıra, altın karışımları (amalgam) ve cıva damlaları da ierir (Atanasov ve diđ., 1988).

Bulgaristan'ın bazı bölgelerindeki cıva, cıva kirlenmelerinin potansiyel dođal kaynađıdır. *Anahtar Kelimeler:* Cıva, cıva kirlenmeleri, Bulgaristan