

SUPPLEMENTARY MATERIAL TO
Use of honeybees (*Apis mellifera* L.) as bioindicators of spatial variations and origin determination of metal pollution in Serbia

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STUDY AREA

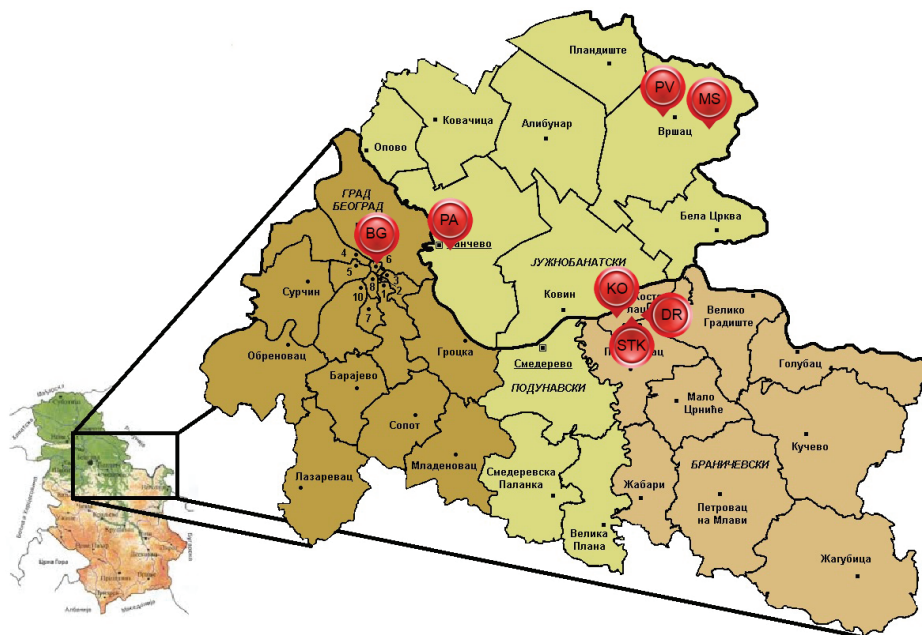


Fig. S-1. Map of sampling locations.

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Belgrade (BG)

Two apiaries were located in Belgrade (BG), both in the urban part of the city (Fig. S-1). One was located at the Faculty of Veterinary Medicine (BGVT) of the University of Belgrade. Close to the apiary is the highway E-75, as well as many high frequency traffic streets. Another one was located at the Faculty of Agriculture (BGPO) of University of Belgrade, which is located in the northern part of the city (Fig. S-2). The distance between these two locations is 7 km.

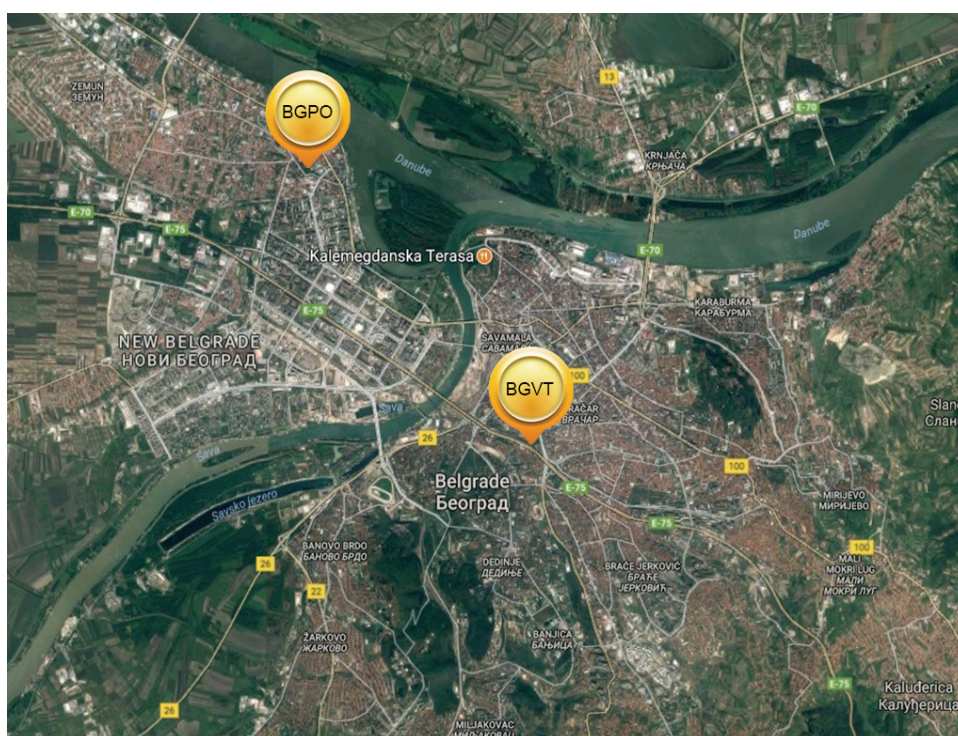


Fig. S-2. Map of sampling locations in Belgrade.

Pavliš (PV)

One in the village of Pavliš (PV). This village is 5 km from the town of Vršac in a north-west direction (Fig. S-1). The village is surrounded by agricultural land.

Mesić (MS)

One apiary was located in the village of Mesić (MS, Fig. S-1). The apiary was located at the border of a protected area “Vršačke planine”. To the west there are 600 ha of vineyards.

Drmno (DR)

One sampling site was in the village of Drmno (DR) (Fig. S-1). The apiary is located 1.5 km to the south of thermal power plant “Kostolac B” (TP-B) and 4 km to the east of thermal power plant “Kostolac A” (TP-A). The village is surrounded from three sides by an open pit coal mine (CM) (Fig. S-3).

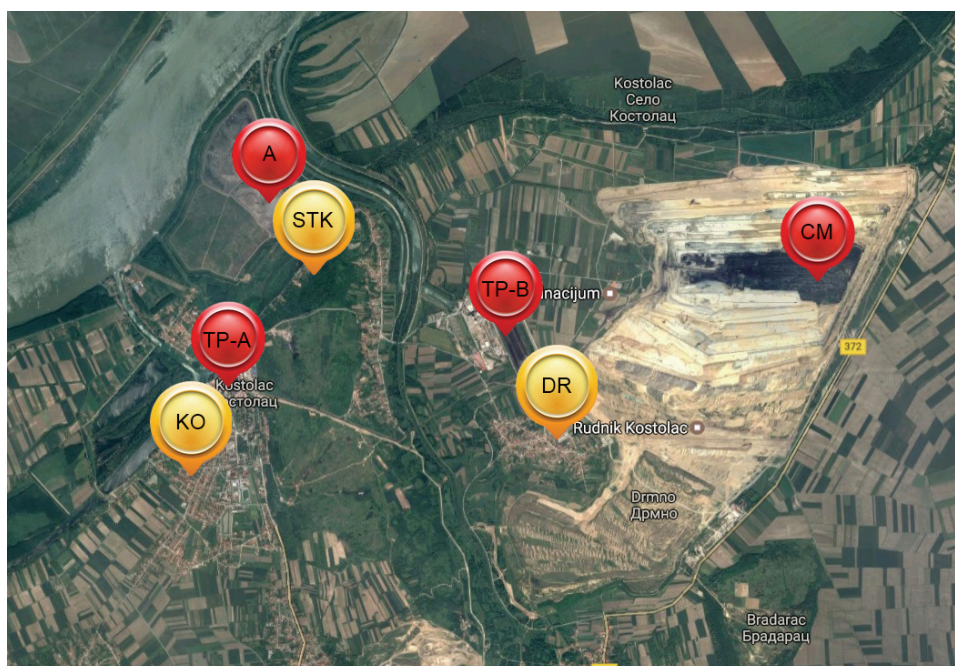


Fig. S-3. Map of sampling locations in Drmno, Kostolac and Stari Kostolac.

Kostolac (KO)

One apiary was located in the town of Kostolac (KO, Fig. S-1). 2 km to east of the apiary in Kostolac there is a thermal power plant “Kostolac A” (TP-A) (Fig. S-3). Also, there is an ash disposal site (A) 3.6 km to the north-northwest. Thermal power plant “Kostolac B” is located 4.5 km to the east-northeast (Fig. S-3).

Stari Kostolac (STK)

One sampling site was located in the village of Stari Kostolac (STK, Fig. S-1). This apiary is located only 500 m south of the ash disposal site (A). Thermal power plant “Kostolac A” (TP-A) is located 1.7 km south-west, while thermal power plant “Kostolac B” (TP-B) is located 2.5 km to east-southeast (Fig. S-3).

Pančevo (PA)

Two apiaries were located in the city of Pančevo (PA, Fig. S-1). The city is well known for its oil refinery (OR) and fertilizer production plant (F). One in the eastern part of the city (PABA), located 5 km to the north of fertilizer plant (F), and 6 km of the oil refinery (OR) in the same direction. The other apiary was located in the western part of the city (PAZV), 2 km to the north-northwest of the fertilizer plant (F), and 3 km from the oil refinery (OR, Fig. S-4).

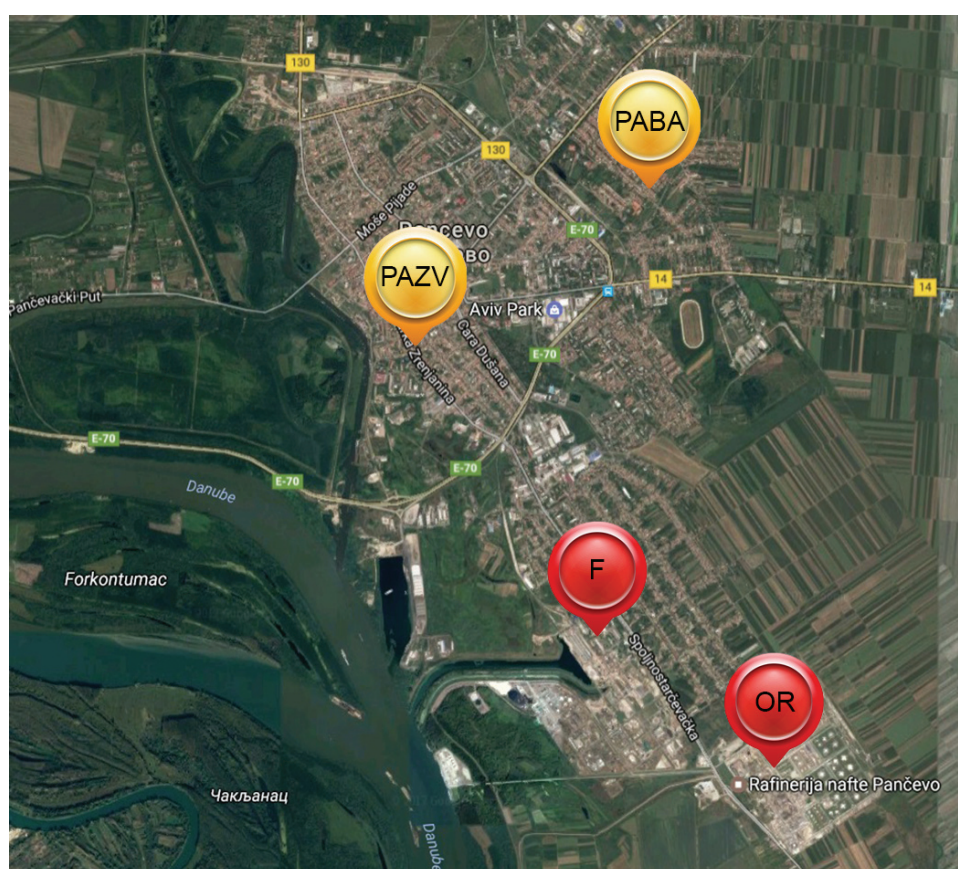


Fig. S-4. Map of sampling locations in Pančevo.

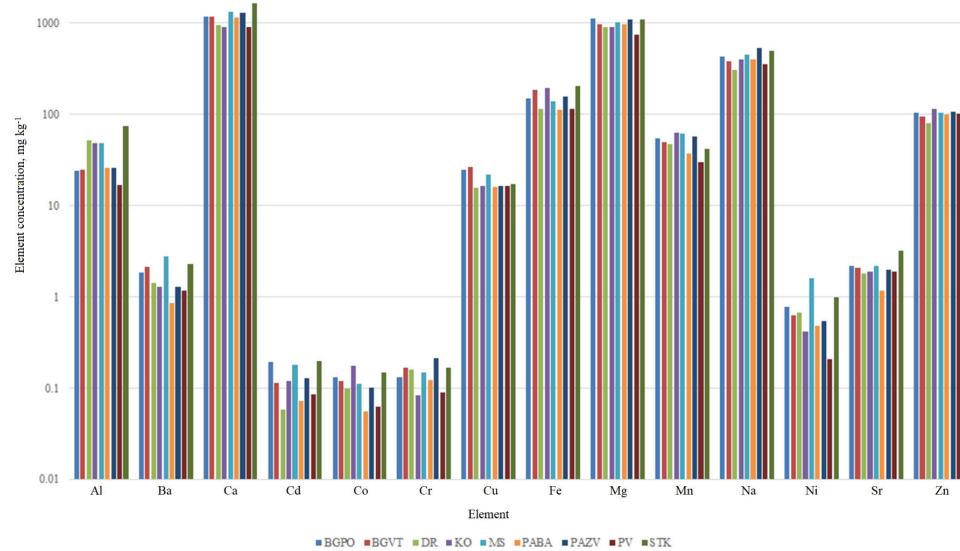


Fig. S-5. Mean concentration comparison of all analyzed elements for nine apiaries.