

ENVIRONMENTAL STATUS IN CORRELATION WITH WATER QUALITY PARAMETERS OF THE SOUTH MORAVA RIVER

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ABSTRACT

The South Morava River is very important resource for the City of Vranje. Its water serves for irrigation of agricultural land and for drinking, so the water quality and its environmental status is of great importance. Water quality control in the South Morava is done on a monthly basis by chemical and physical methods. Controlling is done at two measuring points from which the samples are taken, namely the village of Mezgraje, near the Railway Bridge, and the site of Mramora Novo Selo. Tests of water samples from the South Morava River included determination of: general parameters, nutrients, salinity, organic substances and microbiological parameters. Measured values of the investigated physicochemical parameters at the sampling location at Mezgraja village level, with the Railway Bridge, dominantly correspond to class I, except for BOD₅ corresponding to class V, HPC corresponding to class IV, TOC, phenolic compounds and total nitrogen corresponding to class II, nitrites, orthophosphates, ammonium ion, copper and iron content corresponding to Class III,. At the same location, the measured values of microbiological parameters correspond to Class IV. The water of South Morava River, from the physico-chemical aspect, has a mixed excellent to poor environmental status, while from a microbiological point of view it has a moderate environmental status at Mramor (Novo Selo) or poor ecological status at the level of the village of Mezgraja, at the Railway Bridge. The results of the water quality control tests show that the water is nutrient-poor and has microbiological parameters present in MPN/100 ml.

Keywords: water quality control, environmental status, South Morava River, testing, chemical methods, physical methods,

IZVOD

Reka Južna Morava je veoma važan resurs za Grad Vranje. Njena voda služi za navodnjavanje poljoprivrednih površina i za piće, pa je od velikog značaja njen kvalitet i ekološki status. Kontrolisanje kvaliteta vode u Južnoj Moravi radi se na mesečnom nivou hemijskim i fizičkim metodama. Kontrolisanje se radi na dva merna mesta sa kojih se uzimaju uzorci, to su selo Mezgraje, kod Železničkog mosta i mesto Mramora Novo Selo. Ispitivanja uzoraka vode iz reke Južne Morave obuhvatala su određivanje: opštih parametara, nutritijenata, salinitet, organske supstance i mikrobiološke parametre. Izmerene vrednosti ispitivanih fizičko-hemijskih parametara na lokaciji uzorkovanja u nivou sela Mezgraja, kod Železničkog mosta dominatno odgovoraju I klasi osim za BPK₅ koji odgovara V klasi, HPK, koji odgovara IV klasi, TOC, fenolna jedinjenja i ukupan azot koji odgovaraju II klasi, nitriti, ortofosfati, amonijum jon, sadržaj bakra i gvožđa koji odgovaraju III klasi. Na istoj lokaciji izmerene vrednosti mikrobioloških parametara odgovaraju IV klasi. Južna morava sa fizičko-hemijsko aspekta ima mešoviti odličan do loš ekološki status dok sa mikrobiološkog aspekta ima umeren ekološki status kod Mramora (Novo Selo) odnosno slab ekološki status u nivou sela Mezgraja, kod Železničkog mosta. Rezultati ispitivanja kontrole kvaliteta vode pokazuju da je voda siromašna nutrijentima, a da ima mikrobioloških parametara koji su prisutni u MPN/100 ml.

Ključne reči: kontrola kvaliteta vode, ekološki status, Južna Morava, ispitivanje, hemijske metode, fizičke metode.