Geni za β-laktamaze proširenog spektra i oportunističke patogene u uređajima za pročišćavanje otpadnih voda u Hrvatskoj

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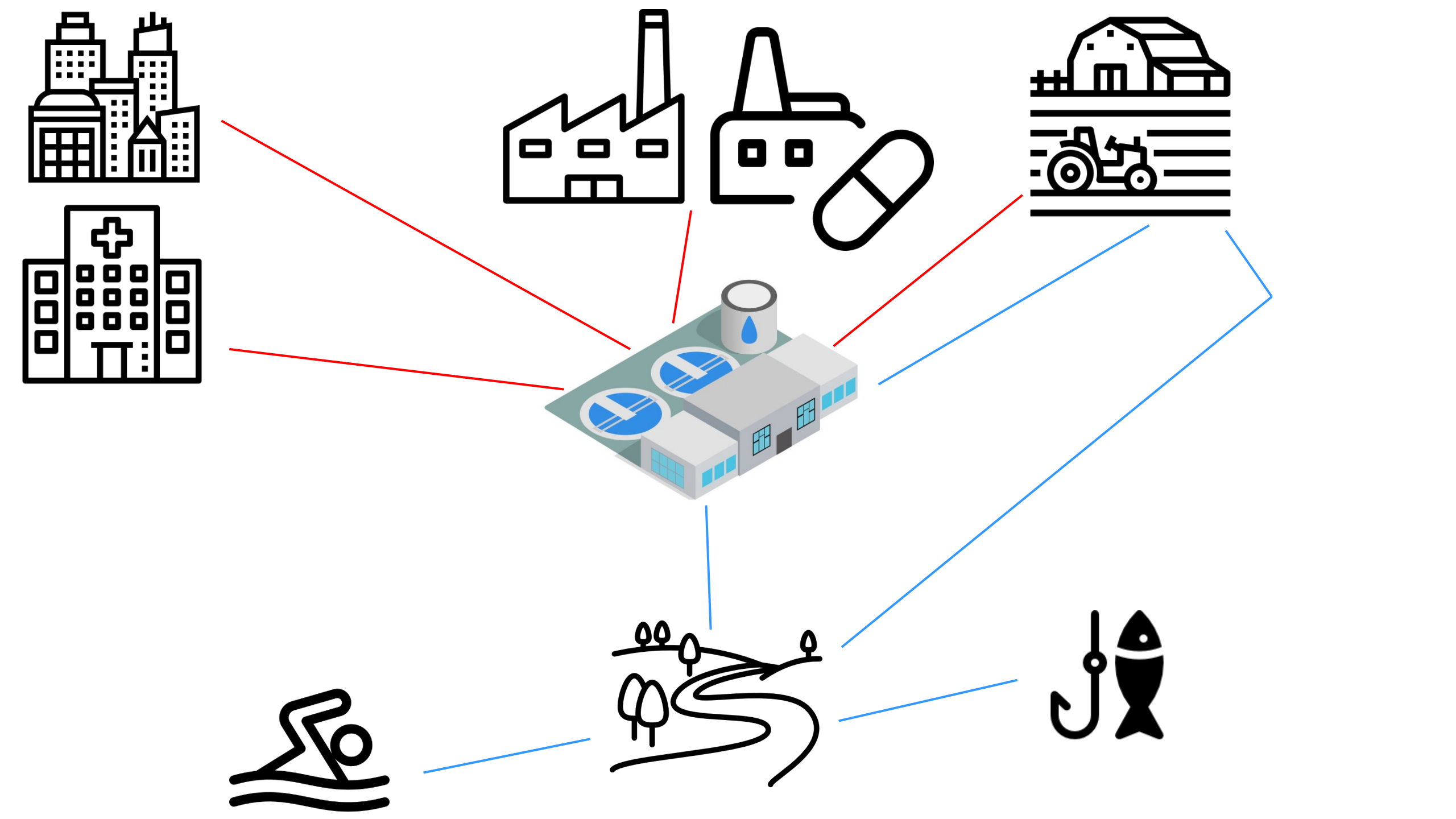
HRZZ projekt: WasteCare IP-2019-04-5539

Uvod

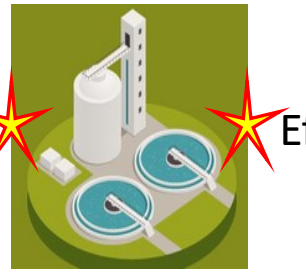
- WHO – antibiotička rezistencija - globalna prijetnja

- Beta-laktamaze proširenog spektra (ESBL) – zaštita i širenje plazmidima
- CTXM ($bla_{CTX\text{-}M}$) i TEM (bla_{TEM})
- Širenje ESBL gena – limit učinka penicilina i cefalosporina 3. i 4. generacije

- ***K. pneumoniae, E. coli***
- *Enterococcus* spp., *Klebsiella pneumoniae, Acinetobacter baumannii* (ESKAPE) + *E. coli*
- Uređaji za pročišćavanje otpadnih voda (UPOV) – **uvjeti za širenje ARB i ARG**

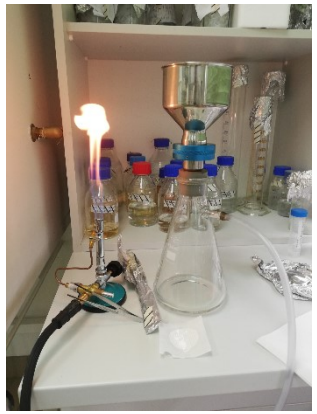


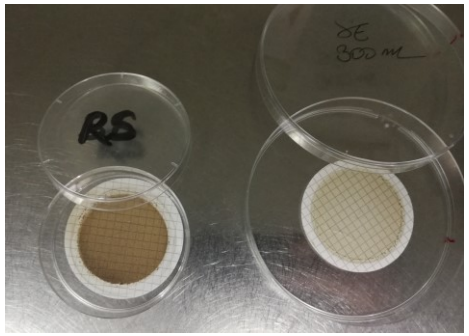
Metodologija

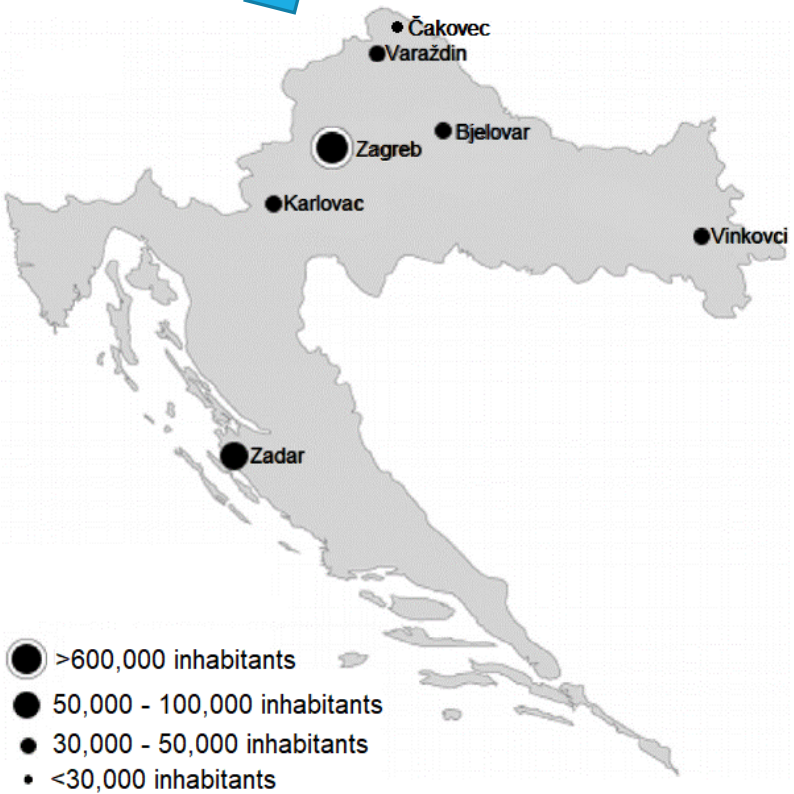


Influent

Effluent







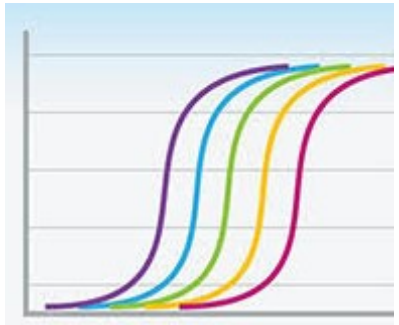
ESBL

bla$_{\text{CTX-M-32}}$

bla$_{\text{TEM}}$

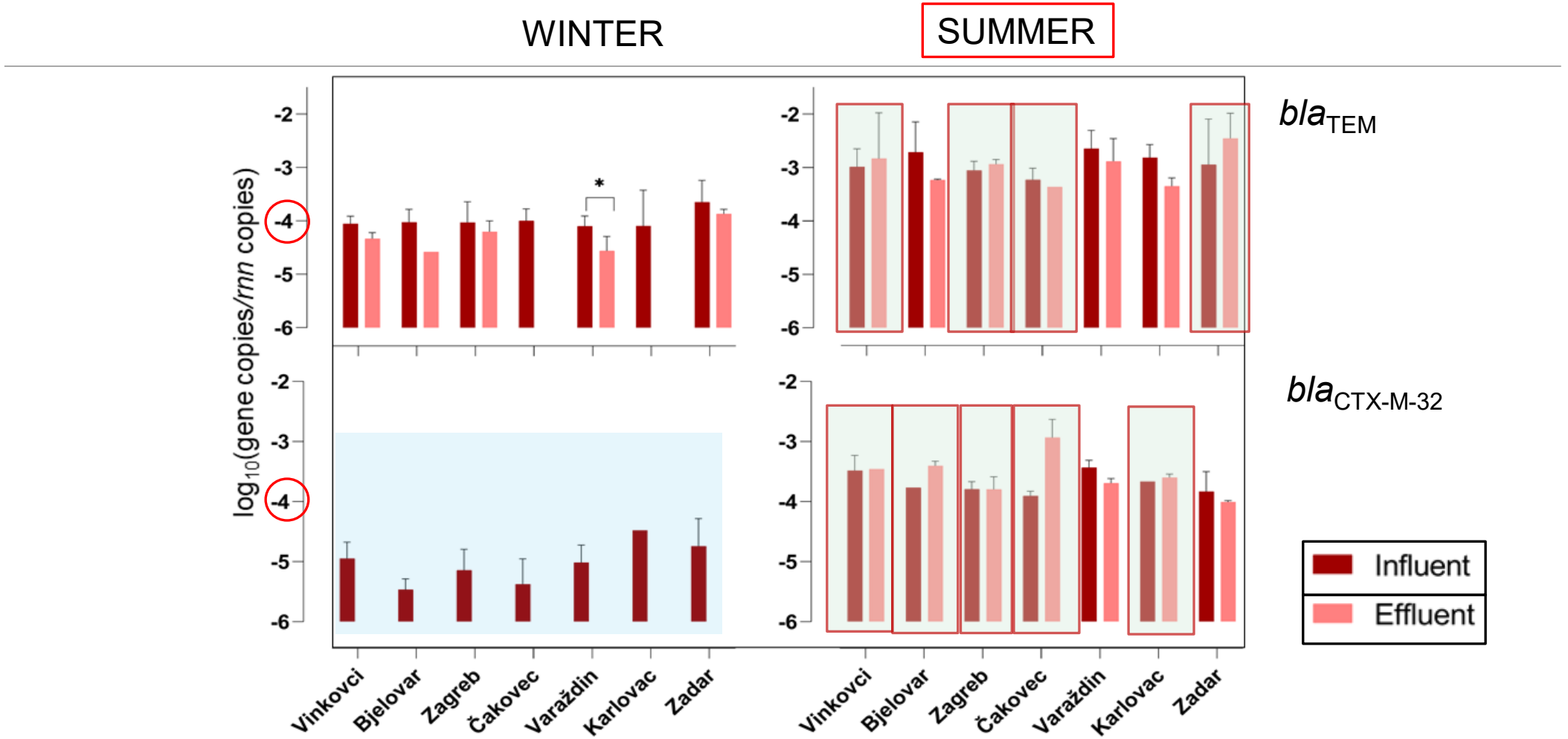
Patogeni

*ycc*T, 23S rRNA, *glt*A, *sec*E



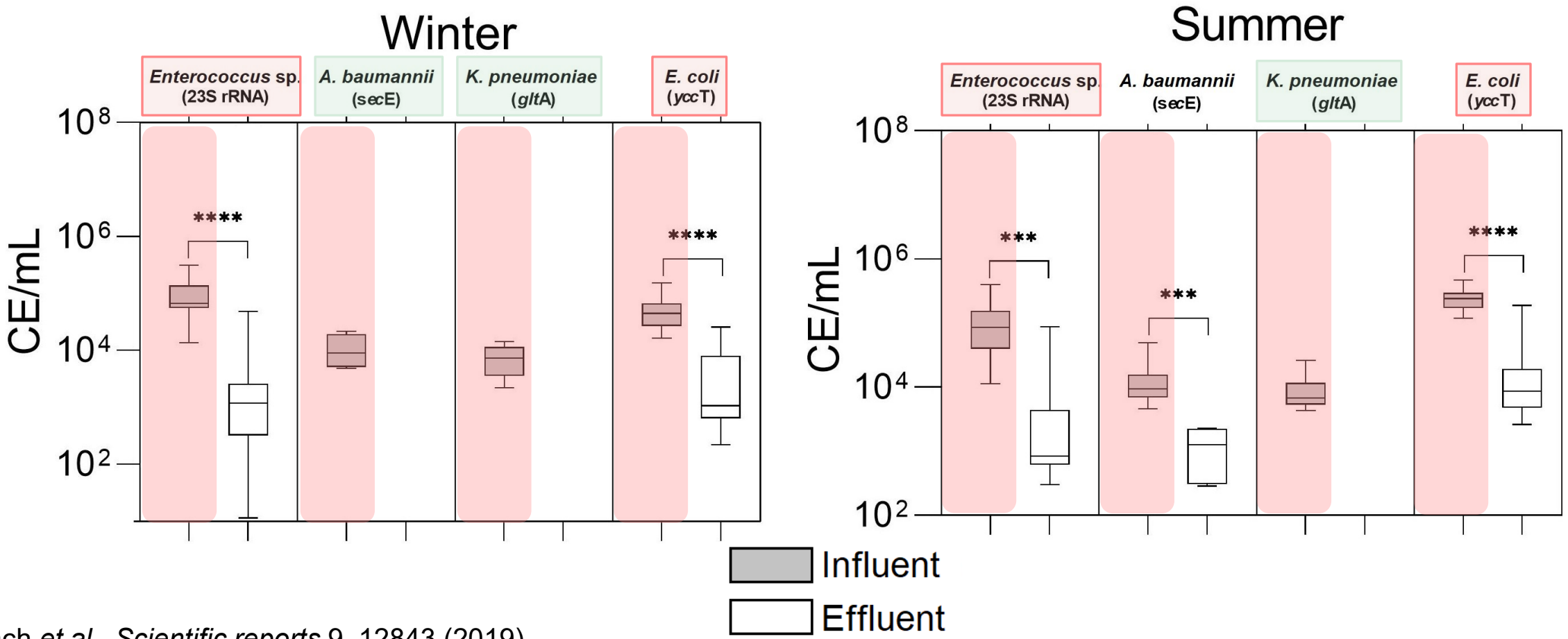
Rezultati

ESBL geni



Cacace et al.,*Water Res.* 162, 320-330 (2019)

Oportunistički patogeni



Hembach *et al.*, *Scientific reports* 9, 12843 (2019)

Zaključci

- Visoka abundancija ESBL gena nakon konvencionalnog treatmana otpadne vode
- UPOV – selekcija oportunističkih patogena
- ARB i ARGs -Dospjevanje u okoliš → utjecaj na ljudsko zdravlje
- Poboljšanje tretmana obrade otpadne vode u Hrvatskoj! → dodatni tretmani + monitoring

Zahvaljujem na pažnji

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