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# **Determination of ecotoxicity of SARS-CoV-2** antiviral drugs

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### **INTRODUCTION**

The coronavirus, which is caused by the SARS-CoV-2 virus, affects the human respiratory tract and has led to over 7 million deaths.

Antivirals, which are essential for the treatment of many diseases, can have a

negative impact on aquatic organisms.

This study investigated the effects of SARS-CoV-2 antivirals on the bacterium Pseudomonas putida.

Can substances which cure SARS-CoV-2 virus be harmul to a microorganism such as *Pseudomonas* putida?

Antiviral drugs which were used for ecotoxicity tests with the bacterium Pseudomonas putida



sofosbuvir (SOF)









RESULTS



• The number of living cells (CFU) was determined in order to observe the influence of the antiviral drugs on the growth of the bacteria.

• The CFU of the bacterium Pseudomonas putida was determined by preparing decimal solutions at the beginning and end of the experiments.



Observed inhibitions (INH) of Pseudomonas putida growth after 16 h of exposure to 5 concentrations of antiviral drug ATA.





Observed inhibitions (INH) of *Pseudomonas putida* growth after 16 h of exposure to 5 concentrations of antiviral drugs RIB, SOF, OSE, EMT, and NIR.

## CONCLUSIONS

After 16 hours, the number of living cells of the bacteria (CFU) was determined.  $\checkmark$ 

The results showed that higher antiviral concentrations led to a stronger inhibition of bacterial  $\checkmark$ 



#### Emtricitabine (EMT) at a concentration of 0.1 mmol/L was the most toxic and inhibited bacterial

### growth by 98.94%, while Nirmatrelvir (NIR) at the same concentration inhibited growth by only



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