Action number: CA21111
STSM title: Ecotoxicological evaluation of a novel anti-trypanosomal compound
STSM start and end date: 31/07/2023 to 31/08/2023
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Being patented as promising drug candidates for the treatment of late-stage sleeping sickness and animal African trypanosomiasis, two nucleoside analogues (FH7429-D & FH15967) were evaluated for ecotoxicity during the short-term scientific mission (STSM) supported by Cost Action. The STSM aimed to conduct ecotoxicological tests on these two compounds using *Daphnia magna* and green algae (*Desmodesmus subspicatus*) as test organisms. *D. magna* acute immobilisation test (OECD 202) and algae growth inhibition test (OECD 201) were performed for both compounds in accordance with OECD guidelines. Additionally, the *D. magna* reproduction test (OECD 211) was performed for FH7429-D. Our findings showed relatively low toxicity of FH15967 to *D. magna* (EC50 = 17.5 mg/L), while the toxicity was higher to algae (EC50 = 6.07 mg/L). Conversely, FH7429-D did not show toxicity to algae at the highest test concentration (50 mg/L), but demonstrated relatively high toxicity on *D. magna* (EC50 = 0.54 mg/L). In the *D. magna* reproduction tests, FH7429-D resulted in significantly lower mean offspring production per adult (at concentrations ≥ 0.4 mg/L) compared to the control group. Overall, our data suggest that the toxicity of these compounds to the tested organisms (*Daphnia* and algae) follows a species-specific pattern. Considering the potential development of these compounds as therapeutic candidates for animal trypanosomiasis, these results provide valuable information on the potential risks of the compounds to the aquatic environment and support the development of environmentally friendly drugs for vector-borne diseases in line with One Health principles.

- The results will be presented at the "Biomarker and indicators for ecotoxicology's studies in the drug R&D process" workshop in Giessen, Germany
- The results will be included in two papers that will be published in the near future
- The writing of a review paper was initiated during the STSM and will be submitted to the *ACS Infectious Disease* journal by the end of this year