IFIS 2024

INTERNATIONAL FOOD INNOVATION AND SUSTAINABILITY CONGRESS

ABSTRACT BOOK

ORAL PRESENTATIONS

Reducing the Negative Impact of Invasive Crayfish *Faxonius Limosus* in the Danube by Smart Exploitation of Their Meat and Shells

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Invasive Alien Species (IAS) are identified as one of the five top direct drivers of biodiversity loss, pointing to one of the most significant threats for humanity in the next decade. Spiny-cheek crayfish *Faxonius limosus* is a native species to Eastern North America but has been recorded so far in more than 20 European countries and listed as IAS of Union concern. The first record of *F. limosus* in Serbia was in the Danube River near Apatin in 2002. Nowadays, this species has established itself along the entire Serbian section of the Danube River and its tributaries. Considering available data and high dispersal rate of this species, it can be assumed that its invasive range in Serbia is more extensive than it is documented, with a tendency for a high degree of expansion in the future. It is an omnivorous species that feeds on aquatic vegetation, fish eggs and invertebrates, and thus affects biodiversity. The spiny-cheek crayfish shows several characteristics such as rapid maturation, short lifespan, high fecundity, and second mating period, which facilitate its fast population growth, giving it high invasive potential. Additionally, the negative impact of *F. limosus* on the native crayfish populations in Europe is expressed in competition for habitats, in which the invader is more adaptive; it is a carrier of crayfish plague, lethal for the European native crayfish, and can destabilize riverbanks and modify other habitats, due to its burrowing behavior causing substantial economic damage. Generally, the economic damage caused by IAS could cost Europe billions of euros per year, and damage costs are continuing to rise. Considering that *F. limosus* is one of the most important aquatic invaders in European inland waters, prevention, control, and eradication of this species represent the greatest challenge in the field of biodiversity maintenance. Due to their high prevalence, it is too late for their prevention. On the other hand, the introduction of predators will have worse consequences for biodiversity; therefore, monitoring and reducing the abundance of this species seems like the best possible solution. Since this species is one of the most critical aquatic invaders in European inland waters, there is an urgent need to address the problem of its impact on biodiversity. Methodological approaches to be used intend to preserve biodiversity, turning the acquired knowledge into a variety of eco-products, in line with the concept of zero waste. These include food products with spiny-cheek crayfish meat intended for human/pet consumption, adsorbent for heavy metal ions removal from wastewater, rubber product filled with crayfish shell powder, and active chitosan-based biomaterial made from shell powder. This approach will significantly contribute to the formation of the ecological concept of the circular economy.

Keywords: Invasive species, spiny-cheek crayfish, zero waste, eco-products.

This research was supported by the Science Fund of Republic Serbia, #GRANT No. 7417. "Reducing the negative impact of invasive crayfish Faxonius limosus in the Danube by smart exploitation of their meat and shells" DANUBEcare