

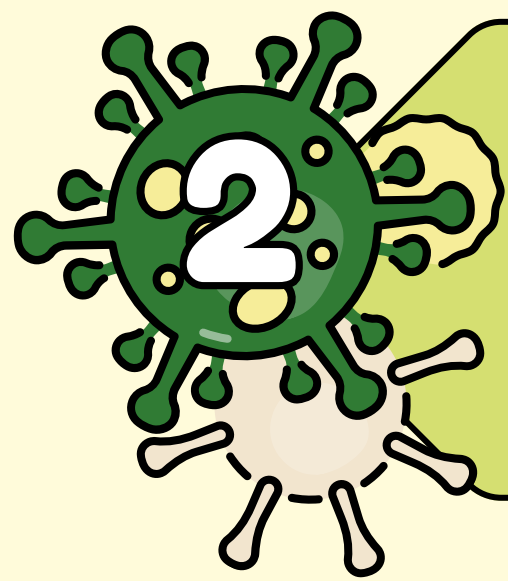
HOW MUROPEPTIDE CAN BE USED TO MANAGE INVASIVE PLANTS



INVASIVE PLANTS

Invasive organisms threaten the health of fragile ecosystems and endangered animals. The removal of such invasive species is of great importance to maintain high biodiversity in ecosystems.

1



DAMAGE TO ECOSYSTEMS

Invasive organisms reduce biodiversity across the globe, damaging both ecosystems and species. These exotic animals and plants often replace the native species through various methods such as predation, alteration of habitat, disease transmission, and out competition (Kumar Rai & Singh, 2020). Many invasive plants, like Kudzu, an invasive Chinese arrowroot, possess the ability to overshadow entire forests of native species, inhibiting their access to sunlight, and in turn, deactivating their natural photosynthesizing ability.

REMOVAL METHODS

Invasive plant removal is often achieved through several methods: chemical removal, biological removal, and mechanical removal; however, each method has its own limitations and shortcomings. The pitfalls include damage to water systems, harm to native plants and animals, and the disruption of the soil microbial communities.

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MUROPEPTIDES

A potential alternative for the herbicides frequently used in removal processes is the application of muropeptides. Muropeptides, fragments of bacterial peptidoglycan, can induce immune responses in plant species that have pattern recognition receptors recognizing peptidoglycan.

ECOSYSTEM HEALTH

With the development of eco-friendly removal methods for invasive species biodiversity can flourish, and ecosystems can regain their natural balance. This biological control technique could allow native species to reclaim their territories, fostering richer and more resilient environments. The reduction of toxic pesticides and herbicides keeps soil, water, and non-target organisms unharmed, preserving intricate ecological relationships. In turn, healthier ecosystems provide essential services like carbon sequestration, water purification, and pollination, ensuring their stability and longevity for generations to come.

5

