Populärvetenskaplig sammanfattning för projekt finansierat av Ekhagastiftelsen

Populärvetenskaplig sammanfattning ska lämnas inom 2 månader efter anslag har beviljats.

Diarienummer:	2021-22
Projekttitel:	A natural antibiotic with many talents: Synergistic and resistance-breaking activities of rhodomyrtone
Anslagsmottagare:	Chalmers University of Technology
Projektledare/Kontaktperson:	Michaela Wenzel
Projektstart:	2022-04-01
Projektslut:	2025-03-30
Totalt av Ekhagastiftelsen beviljade medel:	1 390 000 SEK

Sammanfattning: (max 150 ord)

Rhodomyrtone is a natural compound from the rose myrtle, an Asian healing plant used in traditional medicine for its impressive antibacterial properties.
Rhodomyrtone has a unique mechanism, by which it kills bacteria: it acts as a membrane protein trap. Bacterial membranes host a multitude of cellular processes that are vital for survival. By trapping the involved proteins in membrane vesicles, rhodomyrtone inhibits membrane function and rapidly kills bacteria. Additionally, it increases uptake of molecules over the membrane.
This mechanism inspires new innovative treatment approaches based on natural medicines, which we will explore in this project. Firstly, enhanced membrane uptake may potentiate the effectivity of other antibacterial agents. Secondly, protein-trapping could be a new strategy to inactivate multi-drug efflux pumps. These membrane-bound transport proteins are a crucial antibiotic resistance mechanism that renders many common antibiotics ineffective. Thus, rhodomyrtone could be a new natural weapon in our fight against resistant bacteria.