Investigation of the Antimicrobial properties of *Rosa canina* on *Escherichia coli* and *Micrococcus luteus* in partnership with a traditional knowledge keeper

By: Paloma Ruiz
VIU Faculty Advisor: Dr. Suzanne Nilson

The medicinal properties of plants used by Indigenous people in British Columbia are well known and may be potentially used as an alternative to antibiotics. *Rosa canina* is an example of a medicinal plant used to treat various diseases such as urinary tract and gastrointestinal infections. This study tested the antimicrobial effects of *Rosa canina* against the Gram negative bacteria *Escherichia coli* and the Gram positive *Micrococcus luteus.* The study was undertaken in partnership with an Indigenous knowledge keeper from Cowichan tribes. Plants were harvested following the keeper's guidance and the effects of the plant were tested following two different methods: The Western Science approach and The Indigenous Science approach. The Western approach tested plant extract by the use of the Kirby Bauer disc diffusion test and standard bacterial population counts. In contrast, for the Indigenous approach, bacterial population counts and Minimum inhibitory concentration (MIC) of different tea concentrations were conducted. The effectiveness of each approach was compared. Kirby Bauer test and bacterial population counts results demonstrated that *Rosa canina* extract was effective against *Micrococcus luteus*. The extracts inhibited growth of *M. luteus* with 15.88±2.18 (mean ±SD) inhibition zones compared to the antibiotic ciprofloxacin 26.88±0.84 (mean ±SD). Also, MIC results showed a minimum inhibitory concentration of 0.05 g/ml as bacterial population counts for *M. luteus* following treatment with plant extract or tea showed viable bacterial cell counts of 6.70 log cfu ml^{-1} and 6.39 log cfu ml^{-1} respectively, while control treatments showed bacterial cell counts at 8.99 log cfu ml^{-1}. However, neither the extract nor the tea showed an inhibitory effect on *Escherichia coli*. The results from this study demonstrated that both treatments with *Rosa canina* were effective against *M. luteus* but not against *E.coli*.