

TITLE: Antimicrobial Activity of *Cirsium discolor* Flower Extract against *Staphylococcus aureus* and *Acinetobacter baumannii*

AUTHORS: Randi Allen, Amalia Graell, and Adani Pujada

FACULTY SPONSORS: Maria Nagy, Department of Biology

Introduction: *Cirsium discolor* is commonly found in Canada and in the southeastern part of North America (USDA, 2013). *C. discolor* is only able to grow flowering stems during the winter season. There have been medicinal properties previously studied regarding this plant, and the whole plant can be used to excrete toxic wastes from the body and also help in treating hypertension (Hempfen and Fischer, 2009).

Purpose: The antimicrobial activity of the acetone extract of *C. discolor* flowers against *Acinetobacter baumannii* and *Staphylococcus aureus* was studied by using techniques such as thin layer chromatography (TLC), column chromatography, and TLC bioassay.

Methods: TLC is one of the techniques that was carried out to separate the acetone extract into different components based on polarity; the optimum solvent system used to separate the components of the extract was 3 Hexane: 2 ethyl acetate: 1 methanol. The TLC bioassay was later performed to determine the active compound that exhibit the antimicrobial activity against *S. aureus* and *A. baumannii*. The column chromatography was used to isolate the active compound that is producing the antimicrobial activity against the microorganisms.

Results: Initial results of the TLC bioassay suggest that the active compound showing the antimicrobial activity is a non-polar compound, because the zone of inhibition was around a band that was located at the top of the TLC plate.

Conclusion: The results indicate that there is an active ingredient located in the extract of *Cirsium discolors* that is causing the antimicrobial activity against *S. aureus* and *A. baumannii*.

Recommendations: Since there has been no previous research done on the antimicrobial activity of this particular plant there can be further tests performed to determine if this medicinal plant can successfully be synthesized into an antibiotic that can help patients suffering from illnesses caused by these two microorganisms. These studies can be further used to also determine what other potential microorganisms *C. discolor* is susceptible to.