Commonly called the Mexican prickly poppy, *Argemone mexicana* is a stress-resistant member of the Papaveraceae family of plants that has been used in traditional medicine for centuries by indigenous communities in Mexico and Western parts of the United States. This plant has been used to treat a wide variety of ailments, including skin diseases and intestinal infections, with reported antimicrobial properties. However, these properties are poorly understood and no bioactive compounds have yet been identified in the plant to account for this antimicrobial action. Herein, we describe the growth conditions and preliminarily characterize the antibiotic effects of different parts of the *A. mexicana* plant. We report that 2 mg of *A. mexicana* methanol root extract possesses antibacterial activity against the bacteria *Bacillus cereus* and *Staphylococcus aureus*, while the same concentration has no inhibitory effect on the fungus *Candida albicans*. Moreover, the methanol root fraction displays a stronger antibacterial effect, when compared to either the methanol seed or leaf fractions at the same concentrations and normalized to background solvent alone. Additionally, we show that when supplemented with 1000 mg/L of the phytochemical gibberellic acid (GA), germination rates of *A. mexicana* are significantly increased when compared to germination with either no GA or 100 mg/L GA. These preliminary results warrant further research into defining the antimicrobial properties and chemicals produced in the roots of these plants and are especially significant given the growing global concern of antibiotic-resistant ‘superbugs’ and lack of new antimicrobial drug discovery.

**INTRODUCTION**

With the high number of antibiotic-resistant pathogenic microorganisms, there is a pressing need for the development of new classes of antibiotic drugs (reviewed in Clatworthy et al., 2007). One potential source for the discovery of new anti-infection agents is from medicinal plants (reviewed by Ríos & Recio, 2005). A. mexicana is from medicinal plants (reviewed by Ríos & Recio, 2005). One promising medicinal plant candidate is the fairly unexplored *Argemone mexicana*, commonly called the Mexican prickly poppy. *A. mexicana* is a hardy pioneer plant that has been used since the time of the Aztecs for medicinal purposes ( Emmart, 1940). This plant is used in traditional medicine in different parts of the world to treat a wide variety of ailments, such as tumors, warts, skin diseases, inflammation, rheumatism, jaundice, leprosy, microbial infections, and malaria (reviewed in Brahmacari et al., 2013). Some chemical and pharmacological aspects of *A. mexicana* have been identified (reviewed in Brahmacari et al., 2013), but, to date, no bioactive compounds have yet been identified in the plant to account for its medicinal effects, such as its antimicrobial or anticancer actions. Herein, we describe the growth conditions and preliminarily characterize the antibiotic effects of different parts of the *A. mexicana* plant.

**REFERENCES**


**RESULTS & METHODS**

**ABSTRACT**

**CONCLUSIONS**

- **A. mexicana** germination rates are significantly increased with the addition of 1000 mg/L gibberellic acid (Fig. 2).
- The methanol root extract displays antimicrobial activity against two bacterial species but has no effect on the fungal species tested (Fig. 4).
- The methanol root fraction displays a stronger antibacterial effect than either the methanol seed or leaf fractions (Fig. 4).
- Further experiments are being conducted to:
  - Test these extracts against different microorganisms
  - Identify the compounds in the methanol root fraction
  - Extract compounds in solvents with different polarities
  - Examine these extracts for anti-cancer properties
- These results are significant given the growing global concern of antibiotic-resistant ‘superbugs’ and lack of new antimicrobial drug discovery.

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