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We previously screened a library of nearly 4000 extracts of plants, marine life, and fungi from the National Center for Natural Product Research to identify compounds that exhibited antimicrobial activity. From this screen, *Nymphaea odorata* (Fragrant Water Lily) extract significantly inhibited the growth of *Burkholderia cepacia* (an opportunistic pathogen frequently associated with drug resistance). The objective of this project is to validate the antimicrobial activity exhibited *N. odorata*, extract and to isolate and identify the compound(s) responsible for this activity. For this project we conducted ethanol extractions on three different parts of the plant: the rhizome, roots, and stems. These antimicrobial properties of these extracts will be determined using drug resistant bacteria including *B. cepacia*, *Acinetobacter baumannii*, *Staphylococcus aureus* and *Pseudomonas aeruginosa*. Here, we will utilize the disk diffusion assays, time-to-kill assays, as well as a fluorescent live/dead staining to test for the presence of antimicrobial compounds. Supported by NIH Grant P20GM103434 to the West Virginia IDeA Network for Biomedical Research Excellence