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Identification of Antibiotic Resistance Genes in Bacteria Associated with Freshwater Sponges

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Sponges (phylum: Porifera) are among the most ancient and primitive living animals, lacking true tissue organization. Sponges are sessile animals that survive as filter feeders in both marine and freshwater environments. Sponges have been reported to have highly specific, but diverse microbial communities. The microbial symbionts perform a wide range of functions, including vitamin synthesis, biochemical transformations of waste products, and production of bioactive compounds. Furthermore, because antibiotics are known to readily enter our freshwater environments, there is a potential that the bacteria present in freshwater sponges also harbor antibiotic resistance genes that could have implications for human health.

Freshwater sponges were collected from different locations throughout Minnesota. DNA was extracted from bacteria associated with the freshwater sponges. Polymerase chain reaction with gel electrophoresis was used to screen bacteria for antibiotic resistance genes that have often been reported from freshwater habitats. In this poster, we present the initial findings of screening the bacteria of freshwater sponges for common antibiotic resistance genes.