WIU CENTENNIAL HONORS COLLEGE
Thomas E. Helm Undergraduate Research Day 2023

Abstract

Poster

Major: Biochemistry

Faculty Mentor(s): Mette Soendergaard

Anti-Cancer Activity of Acmella Extracts in Pancreatic Cancer

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Plants of the Acmella genus have been used as a medicinal herb, and its extracts have shown to have anticancer effects in ovarian cancer cells (unpublished data, Soendergaard Lab). This led to an interest in testing the anticancer effects of Acmella extracts on pancreatic cancer (Mia Paca-2) cells. Here, it is proposed to evaluate the anticancer activity of three different species (Acmella alba, Acmella oleracea, and Acmella calirrhiza). Water, ethanol, and methanol extracts from the root, stem, leaves, and flower of each species will be added to Mia Paca-2 cells. The cells will be grown on 96-well plates in Dulbecco's modified eagles medium (DMEM) supplemented with 10% fetal bovine serum, 5% horse serum, and 5 mg/mL gentamicin at 37°C and 5% CO_2. The cells will be treated with 0.2 mg/mL of each extract for 48 hours. 3-(4,5- dimethylthiazol-2-yl)-2,5 diphenyltetrazolium bromide (MTT) is added and incubated with the cells for 4 hours. Once there is formation of formazan crystals, they are dissolved with dimethyl sulfoxide (DMSO). Viable cells are able to change the color of the solution from yellow to purple. Therefore, we are able to tell which cells are still viable. This will determine the potency of each extract to find which species, section of the plant, and type of extract has the largest effect on the pancreatic cancer cells.
The information found through this research can be used to find new pharmaceutical methods using extracts from the Acmella plant to treat pancreatic cancer.