

Investigating the Effect of Mayapple Extract on Glucose Uptake in Skeletal Muscle Cells

The Mayapple (*Podophyllum peltatum*) is a perennial plant native to North America, commonly found in wooded areas. Its roots and rhizomes have long been valued in traditional medicine and have more recently been used as a source for chemotherapy drugs such as etoposide. Preliminary research into Mayapple extracts has identified compounds with pharmacological potential beyond their current applications. Specifically, early screenings of extracts from the fruit have suggested a possible effect on glucose uptake, which could be of interest for addressing conditions related to glucose metabolism. The current research aims to evaluate the effect of extracts from the Mayapple plant on glucose uptake in mouse C2C12 and rat L6 skeletal muscle cells. To do this, C2C12 and L6 cells are plated in 96-well plates and allowed to differentiate into mature muscle cells. Once differentiated, cells are exposed to various treatments, including a negative control, insulin as a positive control and various Mayapple extracts. Following treatment, cells are incubated with luminescent glucose (Glucose Uptake Glo Assay, Promega) and uptake can then be assessed by measuring luminescence via the SpectraMax i3 microplate reader. Data collection is in progress, but it is hypothesized that introducing Mayapple extracts will enhance glucose uptake in C2C12 and L6 skeletal muscle cells. If confirmed, these findings could have significant implications for the development of future interventions targeting glucose metabolism disorders, potentially paving the way for therapeutic alternatives that reduce dependency on exogenous insulin.