CALIFORNIA STATE SCIENCE FAIR
2012 PROJECT SUMMARY

Name(s)
Casey K. Wu

Project Number
J1934

Project Title
Fibonacci Phyllotaxis in French Marigolds

Abstract

Objectives/Goals
To observe if excess light affects the Fibonacci phyllotaxis of marigolds thorough mutations.

Methods/Materials
Cardboard boxes, 75watt plant bulbs, Six French Marigolds, Water, Lampshades, Wiring. To test, grow Marigolds under varying amounts of light until a sufficient amount of buds is grown to accommodate an accurate test group. Observe each marigold for mutations in petal shape or count.

Results
: Marigolds grew mutations throughout all groups including control, all mutations were similar in shape and Group-1 the control, received 10 hours of light, had mutations in two of three remaining flowers, the other 3 flowers died off before being able to bloom. In Group-2, three of three flowers had mutations, the remainder of plants died off before being able to bloom. In Group-3 one of three flowers had mutations, remainder of flowers die off before being able to bloom. All marigolds with mutations had an #m# mutation where the petal tip was an extreme #m# shape. No marigolds had phyllotaxis mutations

Conclusions/Discussion
Marigolds do mutate under light, however the extent and probability of mutations is unknown because of insufficient an insufficient testing size. No phyllotaxis errors occurred during the testing period. French Marigolds have a phyllotaxis that is sufficient in most amounts of light.

Summary Statement
To observe whether exposure to excess sunlight affects the Fibonacci Phyllotaxis in French Marigolds.

Help Received
Teacher helped with writing of notebook, Mother helped watering plants, Father helped with electrical wiring