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Regeneration Experiment I Abstract

The Planaria worm is an important flatworm that is used for the study of regeneration in invertebrate organisms. Generally known for its avoidance of light-rich environments, the Planaria worm needs liquid water and moderate temperatures in order to thrive. Given these traits, there are many aspects of the Planaria worm that demand further study; the precise impact of different forms of light on the Planaria worm, for instance, remains a relevant topic of inquiry. In this experimental study, we constructed and examined the hypothesis that natural sunlight exposure has a negative impact on the regeneration rate of the Planaria worm. We placed two equally sized groups of six Planaria each (cut and uncut) into petri dish trays containing spring water. We divided each group into a control and treatment section where sunlight was the treatment factor. The results for the control group indicate that all cut heads grew by a factor of nearly two. Their tail counterparts exhibited minor growth with only one tail completely disintegrating by the fourth day. The intact worms in the control group showed positive signs of growth. In the treatment group, the heads experienced little growth and the tails did not live past seven days. The intact worms did not grow at all under sunlight. These results indicate that the presence of sunlight inhibits regeneration by having a negative impact on the rate of mitosis in Planaria. It is further possible that the expenditure of energy needed to avoid sunlight detracts from the worm's ability to focus on its health and growth. The effect of sunlight exposure could be especially detrimental when the Planaria worm is already in a state of stress induced by fragmentation or other kinds of injury.