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The moment of inertia of a Mahogany seed

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During the fall of a Mahogany seed, its wing-like structure is used to create rotational motion to propel itself further. The following research is concerned with the moment of inertia of the seed, which is the basis for analysing the rotational dynamics of the body. The formula used for calculating the moment of inertia was derived based on the approximated geometry of the seed. The inhomogeneity in mass distribution was also considered, and three experiment setups were performed to measure the moment of inertia. The results from these experiments are in an acceptable range of variations. However, the comparison between the formula and the results of the experiments suggests that the empirical factor of 2 must be introduced to the formula. The source of discrepancy is due to the resistance in the system. The obtained semi-empirical formula can be applied in the further study of the Mahogany seed's motion. Moreover, the techniques used in this research could be applied as good practice in high school and undergraduate physics laboratories.

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