Dehiscence of Creeping Woodsorrel's Capsule

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Creeping woodsorrel or Oxalis corniculata is the perennial plant with a slender primary root. The leaf is composed of 3 leaflets. The fruit itself consists of green cylindrical capsules which is similar to pods that either has five weak lobes or angled and attached to stalks. Each capsule contains numerous tiny seeds. Once the capsule is mature and touched, the weak lobes split and the seeds are ejected through the slit to a considerable distance from the parent plant. The researcher aimed at investigating the mechanism underlying the dehiscence of the capsule, dividing the physical appearance of the seeds and the capsule in 3 phases: immature, mature and empty capsule. The following factors were also studied; the dehiscence pattern, the fruit length, the position and magnitude of force, the coefficient of restitution of the seed enveloped with aril and the spreading between seeds and arils in order to create the model for dehiscence of the capsule. Our study revealed that the smooth turgid aril enclosed within the seed was the primary factor of the dehiscence of creeping woodsorrel’s capsule which stored elastic potential energy. An immature capsule had a thick capsule wall preventing the seeds from outside force. Once the capsule grew, the wall became thin. The outside force can affect the seed inside and cause the aril to convert potential energy into kinetic energy. This causes the ejection of the seeds.

Awards Won:
Fourth Award of $500