

Public Abstract

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Title:ELECTROMAGNETIC EFFECTS ON SOYBEANS

Natural or visible light belongs to a family of electromagnetic waves known as the electromagnetic (EM) spectrum. Natural light plays an important role in the growth and survival of species in our eco-system. Light signals regulate changes in structure and form, such as seed germination, leaf expansion, stem elongation, flower initiation and pigment synthesis. It is therefore of interest to determine whether other members of the EM family besides visible light have any effects on plants and seeds, specifically soybeans. Soybean was chosen for electromagnetic field effects studies because it is a potential source for biofuel and when converted to bio-diesel it generates maximum energy per gram. In this study we have exposed different varieties of soybean seeds to EM radiation at a frequency other than that of light. The objective was to determine changes in the germination rate, if any, under the influence of EM field of a given frequency, power and exposure time.

Four different soybean genotypes were used and for small samples (200 per batch) Magellan showed marked difference in germination rate as compared to the others at a power level of 126 Watts, frequency 100 MHz and exposure time 10 minutes. Even though the germination rate of Magellan due to electromagnetic fields were better than other varieties but the results were inconclusive, and not statistically significant for large samples. For future work, we suggest a repeat of similar experiments with other frequencies, exposure times and power levels and more varieties of soybean seeds.