

Death by Black Walnuts

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The goal with this Juglone experimentation is to create a purely organic substance that can stunt the growth of unwanted trees. Juglone is the chemical compound that naturally occurs throughout the black walnut trunk, limbs, leaves, and husks. In this case, I will use this chemical compound to target mesquites and red cedars; which are known to be a few of Oklahoma's majorly invasive trees. After the Juglone is extracted, it will be used as an organic herbicide. Plant Samples A will remain the standards for the experiment. The Juglone will then be dispersed into 10 ml and 20 ml vials and poured within the soil before plant samples B-C are planted. Once plant samples D-E sprout 10 ml and 20 ml vials of Juglone will then be poured on top of the sprouted plants. After experimentation on the mesquite seedlings, the Juglone resulted in success. The mesquites planted within Juglone induced soil were not able to sprout. Furthermore, the mesquites that sprouted in untouched soil were stunted in growth when Juglone was dispersed into the soil. The red cedar experiment will be continued by transplantation. This included a total of eight red cedars. The first two remained the control for the experiment. Two were used for 20 mL amount of Juglone; pouring 20 mL on the roots of one and pouring 20 mL throughout the soil. Two were then used with an increase of 30 mL Juglone, using the same method. The last two were then planted within a Juglone induced mulch. Observations were made. The most effective results came from the red cedars that had Juglone poured on the roots, both 20 mL and 30 mL. Cyclic voltammetry was then used to determine the molality of the extracted Juglone. Due to the interferences of unknown molecules in the extracted Juglone, the molality was undetermined.