

ABSTRACT

ETHEPHON, GIBBERELLIC ACID, AND KINETIN'S EFFECT ON GUAYULE (*PARTHENIUM ARGENTATUM*) SEED'S GERMINATION AND SEEDLING'S DEVELOPMENT

Guayule (*Parthenium argentatum* Gray), “why-you-lee,” is a semi-arid woody shrub that produces high quality, non-allergenic latex that is vital for the medical industry. This agronomic crop could be a potential alternative for the water and fertilizer limited areas of western North America. Due to its low seed germination and slow growth rate, guayule is difficult to establish in the greenhouse and field. Overcoming exogenous and endogenous seed dormancy has been attempted by various pre-treatments in the past, but none have been repeatedly proven to be more effective (George et al., 2005; Jorge et al., 2006). The objective is to determine the effect of gibberellic acid (GA) in combination with ethylene (ET) or cytokinin (CK) on guayule's seed germination and growth rates. Past research has suggested phytohormone interaction or “cross-talk” that advances the transition from seedling dormancy to germination. GA in combination with ethephon (ETH) was able to increase guayule's germination rates, but GA with kinetin (KIN) was not. These phytohormones were unable to significantly increase the seedling growth and developmental rates within 10 d. Further research will be needed to identify those particular treatments and conditions that release the dormancy mechanisms present in guayule.

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