Compound that Regulates Brassinosteroid Response

Tech ID: 25915 / UC Case 2015-936-0

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	10,538,522	01/21/2020	2015-936

IMAGES

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BRIEF DESCRIPTION

Background:

Brassinosteroids are essential plant hormones that control growth and development, in addition to playing a critical role in response to stress and infections. Brassinosteroids also induce ethylene synthesis and are therefore related to senescence and ripening. The major overarching issue involves strictly controlling brassinosteroid response in order to promote growth yet limit other negative effects of brassinosteroids.

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OTHER INFORMATION

KEYWORDS

brassinosteroids, plant hormones, biosynthesis, plant growth, plant stress response, plant infection response, brassinosteroid biosynthesis regulation, plant protection, brassinosteroid-deficiency, ethylene response, ethylene synthesis

CATEGORIZED AS

- Agriculture & Animal Science
  - Chemicals
  - Plant Traits
  - Plant Varieties
- Materials & Chemicals
  - Agricultural
  - Chemicals

RELATED CASES

2015-936-0

Brief Description:

UCR researchers have identified three compounds that alter brassinosteroid signaling in plants. These chemicals were found to increase the effects of limited brassinosteroids found under normal conditions yet reduce the effects of excess brassinosteroids. This includes promotive effects on plant height, which increase by 100% due to the chemical enhancing the impact of endogenous brassinosteroids. In contrast, the extreme effects seen with addition of high levels of brassinosteroids are substantially reduced upon addition of this chemical, indicating that this chemical may be useful for modulating the effects of brassinosteroids. In conjunction with this, treatment with the chemical resulted in reversal of several ethylene dependent growth phenomena that are also regulated by brassinosteroids. Currently, there is a huge unmet need in the agricultural sector since treatments that modulate brassinosteroid-regulated phenomena do not exist.

ADVANTAGES

- Enhanced plant growth & development, e.g. improved biomass, 100% taller
- Relatively low chemical concentration (micromolar) of compounds is required
- Delayed ripening & age-related deterioration, which prevents spoiling
- Stronger immune response to stress and infections
- Reduced effects of high levels of brassinosteroids

APPLICATIONS

- Plant enhancement and protection products

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