

(57) **Abrégé(suite)/Abstract(continued):**

additionally include salicylic acid. In one embodiment, the seed treatment composition includes between about 0.001% and about 2% ascorbic acid, between about 0.001% and about 1.5% choline chloride, and between about 0.00001% and about 0.5% indole-3-butyric acid by weight of the composition. A method of treating seeds with the seed treatment composition is also provided. While multiple embodiments are disclosed, still other embodiments of the present invention will become apparent to those skilled in the art from the following detailed description, which shows and describes illustrative embodiments of the invention.

AQUEOUS COMPOSITION FOR ACCELERATING SECRETION OF ALPHA-AMYLASE IN PLANT SEED GERMINATION

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application claims priority to Provisional Patent Application No.61/527,488, filed August 25, 2011, which is herein incorporated by reference in its entirety.

TECHNICAL FIELD

[0002] The present invention relates to a seed treatment composition for producing strong and healthy seedlings. More particularly, the present invention relates to a seed treatment composition including ascorbic acid, choline chloride, and indole-3-butyric acid.

BACKGROUND

[0003] Seed germination is the growth of an embryonic plant contained within the seed, which emerges as a seedling having roots and shoots. Seed germination is the first critical phase in plant growth and development, and establishment of strong and healthy seedlings typically results in a higher yield crop production.

[0004] Seeds of most plant species contain an embryo and some store of food reserves. In seed germination, the food reserves are hydrolyzed (digested) by enzymes to provide substrates for energy as well as blocks of macromolecules for the emergence of shoots from the soil. The majority of the food reserve in the seed is starch, which is digested into sugar mainly by the catalyst of α -amylase.

[0007] The present invention includes a seed treatment composition for the establishment of strong and healthy seedlings. The seed treatment composition can include ascorbic acid, choline chloride, and indole-3-butyric acid. The seed treatment composition can additionally include salicylic acid.

[0008] In one embodiment, the seed treatment composition includes between about 0.001% and about 2% ascorbic acid, between about 0.001% and about 1.5% choline chloride, and between about 0.00001% and about 0.5% indole-3-butyric acid by weight of the composition.

[0009] A method of treating seeds with the seed treatment composition is also provided.

[0010] While multiple embodiments are disclosed, still other embodiments of the present invention will become apparent to those skilled in the art from the following detailed description, which shows and describes illustrative embodiments of the invention. Accordingly, the drawings and detailed description are to be regarded as illustrative in nature and not restrictive.

BRIEF DESCRIPTION OF THE DRAWINGS

[0011] FIG. 1 is a photographic image comparing a plant treated with a seed treatment composition and a plant not treated with a seed treatment composition.

DETAILED DESCRIPTION

[0012] Embodiments of the present invention provide seed treatment compositions useful for treating seeds of a variety of plants, such as but not limited to, corn, wheat, barley, rice, soy

Choline chloride	0.05
Indole-3-butyric acid	0.003
Salicylic acid	0.007
Chitosan	0.17
Water	Balance
Buffer	0.08
Solvent	0.31

[0044] The soybeans of Control A and Control B were of the same variety as those of Sample 1. The soybeans of Control A were treated with same commercially available insecticide/fungicide seed treatment as Sample 1 but were not treated with the seed treatment of the current disclosure. The soybeans of Control B were not treated with the commercially available insecticide/fungicide seed or the seed treatment of the current disclosure.

[0045] The soybeans of Sample 1, Control A and Control B were planted in a test plot using the same planting parameters (e.g., spacing) and were subject to the same environmental conditions. Table 5 summarizes the plant density at 21 days after planting (21 DA-P); the plant density, average plant height, root biomass, and shoot biomass 43 days after planting (43 DA-P); and the grain moisture rating at harvest, 150 days after planting (150 DA-P), for Sample 1, Control A and Control B.

Table 5

	Sample 1	Control A	Control B
Plant density (21 DA-P)<			

CLAIMS

The following is claimed:

1. A ready to use seed treatment composition comprising:
between about 0.001% to about 2 % ascorbic acid by weight of the seed treatment composition;
between about 0.001% and about 1.5 % choline chloride by weight of the seed treatment composition;
between about 0.00001% and about 1% indole-3-butyric acid by weight of the seed treatment composition; and
water.
2. The ready to use seed treatment composition of claim 1, wherein
the ascorbic acid is present in an amount from about 0.01% to about 0.5 % by weight of the seed treatment composition;
the choline chloride is present in an amount from about 0.01% and about 0.1 % by weight of the seed treatment composition; and
the indole-3-butyric acid is present in an amount from about 0.0005% and about 0.01% by weight of the seed treatment composition.
3. The ready to use seed treatment composition of claim 2, and further comprising between about 0.001% and about 0.03% salicylic acid by weight of the seed treatment composition.
4. The ready to use seed treatment composition of claim 1, wherein
the ascorbic acid is present in an amount from about 0.025% and about 0.1% by weight of the seed treatment composition;

between about 0.1% and about 1.0% ascorbic acid by weight of the composition;

between about 0.01% and about 0.5% choline chloride by weight of the composition;

between about 0.005% and about 0.5% indole-3-butyric acid by weight of the composition;

between about 0.01% and about 0.1% salicylic acid by weight of the composition; and

between about 90% and about 99.99% water by weight of the composition.

20. The seed treatment of claim 17, wherein the seed treatment consists essentially of:

ascorbic acid;

choline chloride;

indole-3-butyric acid;

salicylic acid;

a buffer;

a solvent;

water; and

