We Claim: -

1. A method for producing a transgenic plant comprising incorporating into its genome a nucleic acid sequence comprising a plant functional promoter sequence operably linked to a first polynucleotide sequence encoding a plastid transit peptide, which is linked in frame to a second polynucleotide sequence encoding a Cry2Ab Bacillus thuringiensis δ-endotoxin protein, wherein said plastid transit peptide functions to localize said δ-endotoxin protein to a subcellular organelle or compartment.

2. The method of claim 1, wherein said second polynucleotide is operably linked to a plant functional 3' end transcription termination and polyadenylation sequence, wherein expression of said nucleic acid sequence in said plant yields a fusion protein comprised of an amino-terminal plastid transit peptide covalently linked to said δ-endotoxin protein, and wherein said plastid transit peptide functions to localize said δ-endotoxin protein to a subcellular organelle or compartment.

3. The method of claim 1 or claim 2, wherein said subcellular organelle or compartment is a plant plastid or chloroplast.

4. The method of claim 1 or 2, wherein said plant functional promoter sequence comprises a plant chloroplast or plastid functional promoter sequence.

5. The method of claim 1 or 2, wherein said plant functional promoter sequence is naturally expressed in plants.

6. The method of claim 1 or 2, wherein said polynucleotide sequence encoding a Cry2Ab Bacillus thuringiensis δ-endotoxin protein is selected from the group consisting of SEQ ID NO:1 and SEQ ID NO:17.

7. The method of claim 1 or 2, wherein said Cry2Ab Bacillus thuringiensis δ-endotoxin protein is selected from the group consisting of SEQ ID NO:2 and SEQ ID NO:18.

8. The method of claim 1 or 2, wherein said nucleic acid sequence further comprises a plant functional intron sequence.

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9. The method of claim 8, wherein said intron sequence is selected from the group consisting of Adh intron 1, sucrose synthase intron, TMV omega element, maize Heat Shock Protein 70 intron, and the rice Act1 intron.

10. The method of claim 8, wherein said intron sequence is the maize Heat Shock Protein 70 intron.

11. The method of claim 1 or 2, wherein said first polynucleotide sequence encodes a plastid transit peptide of SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, or SEQ ID NO:10.

12. The method of claim 11, wherein said plastid transit peptide of SEQ ID NO:4 is encoded by the nucleic acid sequence comprising SEQ ID NO:3.

13. The method of claim 11, wherein said plastid transit peptide of SEQ ID NO:6 is encoded by the nucleic acid sequence comprising SEQ ID NO:5.

14. The method of claim 11, wherein said plastid transit peptide of SEQ ID NO:8 is encoded by the nucleic acid sequence comprising SEQ ID NO:7.

15. The method of claim 11, wherein said plastid transit peptide of SEQ ID NO:10 is encoded by the nucleic acid sequence comprising SEQ ID NO:9.

16. The method of claim 1 or 2, wherein the Cry2Ab sequence is encoded by a nucleic acid sequence comprising nucleotides 17 to 3182 of SEQ ID NO:13.

17. The method of claim 1 or 2, wherein the Cry2Ab sequence is encoded by a nucleic acid sequence comprising nucleotides 17 to 3092 of SEQ ID NO:14.

18. The method of claim 1 or 2, wherein the Cry2Ab sequence is encoded by a nucleic acid sequence comprising nucleotides 17 to 3155 of SEQ ID NO:15.

19. The method of claim 1 or 2, wherein the Cry2Ab sequence is encoded by a nucleic acid sequence comprising nucleotides 1781 to 5869 of SEQ ID NO:16.

20. The method of claim 1 or 2, wherein the plant is a monocotyledonous plant.

21. The method of claim 20, wherein the plant is a monocotyledonous plant selected from the group consisting of maize, rice, wheat, barley, oats, rye, millet, sorghum, sugarcane, and turfgrass.

22. The method of claim 1 or 2, wherein said plant is a dicotyledonous plant.

23. The method of claim 22, wherein the plant is a dicotyledonous plant selected from the group consisting of cotton, soybean, tomato, potato, citrus, tobacco, canola, and strawberry.

24. The method of claim 1 or 2, wherein said plant further comprises an additional nucleic acid sequence comprising a plant operable promoter linked to a polynucleotide sequence encoding a Cry1 B. thuringiensis δ-endotoxin protein.

25. A nucleic acid sequence comprising a promoter operably linked to a first polynucleotide sequence encoding a plastid transit peptide, which is linked in frame to a second polynucleotide sequence encoding a Cry2Ab Bacillus thuringiensis δ-endotoxin protein, wherein expression of said nucleic acid sequence by a plant cell produces a fusion protein comprising an amino-terminal plastid transit peptide covalently linked to said δ-endotoxin protein, and wherein said fusion protein functions to localize said δ-endotoxin protein to a subcellular organelle or compartment.

26. The nucleic acid sequence of claim 25, wherein said second polynucleotide sequence encodes a Cry2Ab Bacillus thuringiensis δ-endotoxin protein selected from the group of sequences consisting of SEQ ID ND:2 and SEQ ID NO:18.

27. The nucleic acid sequence of claim 26, wherein said second polynucleotide sequence is selected from the group of sequences consisting of SEQ ID NO:1 and SEQ ID NO:17.

Dated this 1 day of May, 2001

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AGENT FOR THE APPLICANT

To,

The Controller of Patents
The Patent Office, Chennai