

Claims

1. A nucleic acid encoding a synthetic fusion protein and comprising at least one of: a sequence of SEQ ID no 3, a sequence having at least 90% sequence identity with SEQ ID no.3 and a sequence having at least 95% identity with SEQ ID no.3.
- 5 2. A vector, preferably an expression vector, comprising the nucleic acid according to claim 1.
3. Vector according to claim 2 wherein the nucleic acid is operably linked to a promoter sequence.
4. A synthetic fusion protein having amino acid sequence of SEQ ID 4.
- 10 5. A synthetic fusion protein having amino acid sequence with at least 90% and more preferably 95% sequence identity with SEQ ID no.4.
6. Composition comprising the protein according to one of claims 4 or 5 and at least one of adjuvant agents, carrier agents, preferably non-ionic adhesives, non-ionic adhesives.
7. Composition comprising the protein according to one of claims 4 or 5 and a lysate of
15 bacterial or fungal cells, preferably of *pichia pastoris* or *bacillus subtilis*.
8. Composition comprising *A.Tumefaciens* transformed with an expression vector comprising a nucleic acid having a sequence of SEQ ID no 3 or a sequence with at least 90% sequence identity with SEQ ID no.3 or a sequence with at least 95% identity with SEQ ID no.3.
9. Composition according to at least one of claims 7 or 8 further comprising at least one
20 selected from adjuvant agents, carrier agents preferably non-ionic adhesives, non-ionic adhesives agents.
10. Composition according to one of claims 6 or 9 wherein the non-ionic tackifier is selected from the group of poly-1-pmenthene, glycol extracts, isodecyl alcohol ethoxylate, modified heptamethyltrisiloxane polyalkylene oxide preferably at a final concentration of between
25 0.0005% and 0.00025%, even more preferably 0.0005%.
11. Composition according to one of claims 6 to 10 further comprising at least one of saline buffer, preferably PBS, protease inhibitor, MgCl₂, cellulose and methyl cellulose, gelling agents, preferably methyl orixane or alginates such as calcium or sodium alginate.
Nucleic acid, carrier, protein or composition according to any one of claims 1 to 11 for use in a
30 method of treating plant pathogens, preferably phytoplasmas and fungi.
13. Method for treating plant pathogens, preferably phytoplasmas and fungi, where said method comprises the application on the plant or parts thereof of at least one of - a microorganisms lysate, preferably *pichia pastoris* or *bacillus subtilis*, expressing the protein having SEQ ID no 4 and / or a protein having 90% and more preferably 95% sequence identity
35 with SEQ ID no 4
 - a protein according to claims 4 or 5
 - a composition according to any one of claims 6 to 11.

14. Method of treating plant pathogens, preferably phytoplasmas and fungi, where said method comprises introducing into said plants an expression vector according to claim 2 or 3 by agroinfiltration with *A. Tumefaciens* and wherein said vector is preferably pRI- 201AN.
15. Process for the production of a protein according to claim 4 or 5 comprising the following basic steps:
- I. In an expression vector, comprising a selection marker, insert a nucleic acid comprising at least one of: a sequence of SEQ ID no 3, a sequence having at least 90% sequence identity with SEQ ID no.3 and a sequence having at least 95% identity with SEQ ID no.3;
 - II. using said vector for the transformation of competent cells suitable for the use of said vector;
 - III. select the competent cells transformed with said vector and multiply them in culture;
 - IV. performing a lysis of the competent cells of point III;
 - V. selecting and purifying the protein according to claim 4 or 5 from the lysate obtained in point IV.
16. Process according to claim 15 comprising a further step of encapsulating the protein obtained at point V in lipids, preferably phospholipids.
17. Process according to one of claims 15 or 16 comprising a further lyophilisation step.