|  |  |
| --- | --- |
|  | Solvants extraction |
| ***n*-hexane** | **Dichloromethane** | ***n*-butanol** | **Ethyl acetate** |
| Zones of inhibition (mm) | 00 | 00 | 14 | 26 |

**Table S1** Antifungal activity of the various organic extracts from the culture filtrates of SZ03 strain



 **Fig. S1** Antifungal activity of the culture filtrate of *Streptomyces lincolnensis* strain SZ03 on the mycelial growth of *Rhizoctonia solani* (left) and a control culture (right). Photography was taken after 3 days culture on ISP2 medium at 25°C

****

**DA**

**EA**

**B**

**H**

**Fig. S2** Antibiography showing the antifungal activity (left) of Ethyl acetate (EA), n-Butanol (B), Dichloromethane (D) and n-Hexane (H) extracts from the supernatant culture of *Streptomyces lincolnensis* strain SZ03 on the mycelial growth of *Rhizoctonia* *solani* and the control culture (left). Photography was taken after 3 days culture on ISP2 medium at 25°C

Microbiological revelation of active fractions

Front of solvent (B.A.E)

A 254 nm

  

Fraction B (Rf = 0,50)

Fraction A (Rf = 0,80)

Inactive fraction against *R. solani*

Active Fraction against *R. solani*

**Fig. S3** Bioautography showing two fractions (A) and (B) in the ethyl acetate extract form the supernatant culture of *Streptomyces* *lincolnensis* strain SZ03 under UV (254 nm) light and their antifungal activities against the mycelial growth of *Rhizoctonia solani*

  

**F2**

ATB\_F2 \_CH2

**C**

**B**

**F2**

ATB\_AE\_SZ03\_ CH1

**F3**"

**F1**

**A**

**Fig. S4** Elution profiles from the HPLC analysis (obtained at 220 nm) of the ethyl acetate extract of the culture filtrate of *Streptomyces lincolnensis* strain SZ03 (A) and after purification by a second re-injection of the "F2" fraction (B)

   

**SAP**

**CAP**

**WTP**

**Fig. S5** Photography showing the three formulated biofungicides: wettable talcum powder (WTP), clay-sodium alginate propagules and sodium alginate propagules based on spores of *Streptomyces lincolnensis* strain SZ03

 

**Fig. S6** Pure culture of *Streptomyces lincolnensis* strain SZ03 on ISP2 medium. Photography was taken after 7 days incubation at 30°C



**Fig. S7** Photography showing the *Rhizoctonia solani* damping off of tomato seedlings. Arrows *indicated* dead seeds after 12 days culture



**Fig. S8** Photographyshowing the growth promotion effect of WTP biofungicide on tomato *cv*. Aïcha seedlings (left) compared to seedling from the negative control (right). Photography was taken after 4 weeks culture