| 1 | Herbicidal | Polyketides | and | Diketopiperazine | Derivatives | from | Penicillium |
|---|-------------|-------------|-----|------------------|-------------|------|-------------|
| 2 | viridicatum | | | | | | |

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1 Content

- 2 Figure S1. HRESIMS spectrum of compound 1.
- 3 Figure S2. ¹H NMR (500 MHz, CDCl₃) spectrum of compound **1**.
- 4 Figure S3. ¹³C NMR spectrum of compound 1.
- 5 Figure S4. ¹H-¹H COSY spectrum of compound **1**.
- 6 Figure S5. HSQC spectrum of compound 1.
- 7 Figure S6. HMBC spectrum of compound 1.
- 8 Figure S7. NOESY spectrum of compound 1.
- 9 Figure S8. HRESIMS spectrum of compound **2**.
- 10 Figure S9. ¹H NMR (500 MHz, CD_3OD) spectrum of compound **2**.
- 11 Figure S10. 13 C NMR spectrum of compound **2**.
- 12 Figure S11. 1 H- 1 H COSY spectrum of compound **2**.
- 13 Figure S12. HSQC spectrum of compound **2**.
- 14 Figure S13. HMBC spectrum of compound **2**.
- 15 Figure S14. NOESY spectrum of compound **2**.
- 16 Figure S15. HRESIMS spectrum of compound **3**.
- 17 Figure S16. ¹H NMR (500 MHz, CD₃OD) spectrum of compound **3**.
- Figure S17. 13 C NMR spectrum of compound **3**.
- 19 Figure S18. 1 H- 1 H COSY spectrum of compound **3**.
- 20 Figure S19. HSQC spectrum of compound **3**.
- 21 Figure S20. HMBC spectrum of compound **3**.
- Figure S21. NOESY spectrum of compound **3**.
- Figure S22. Laboratory herbicidal activity against *E. crusgalli* of the positive control.
- Figure S23. Greenhouse herbicidal activities against *E. crusgalli* of compound 4 and the
- 25 positive control.
- Figure S24. DEPT-135 spectrum of compound 1.
- Figure S25. DEPT-135 spectrum of compound **2**.
- Figure S26. DEPT-135 spectrum of compound **3**.
- 29 Figure S27. HPLC and UV analyses of compounds 1–3.

1 Figure S1. HRESIMS spectrum of compound 1.



3

4 Figure S2. ¹H NMR (500 MHz, CDCl₃) spectrum of compound **1**.



1 Figure S3. ¹³C NMR spectrum of compound **1**.



3

4 Figure S4. ¹H-¹H COSY spectrum of compound **1**.





1 Figure S5. HSQC spectrum of compound **1**.

4 Figure S6. HMBC spectrum of compound **1**.





1 Figure S7. NOESY spectrum of compound **1**.



1 Figure S9. ¹H NMR (500 MHz, CD_3OD) spectrum of compound **2**.

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4 Figure S10. 13 C NMR spectrum of compound **2**.





¹ Figure S11. ¹H-¹H COSY spectrum of compound **2**.

4 Figure S12. HSQC spectrum of compound **2**.





1 Figure S13. HMBC spectrum of compound **2**.

4 Figure S14. NOESY spectrum of compound **2**.



- tr85-34 #1387 RT: 7.17 AV: 1 NL: 4.68E8 F: FTMS + c ESI Full ms [150.0000-1500.0000] 439.21097 100 90-80-70 60 50 40 30 441.21573 20-444.68811 453.22 10-436.20325 471.14804 23 461.192 0 347.18402 355.07111 350 360 367 21045 373 04248 370 420 m/z 428.213 470 410 2
- 1 Figure S15. HRESIMS spectrum of compound **3**.

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- 4 Figure S16. ¹H NMR (500 MHz, CD_3OD) spectrum of compound **3**.



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1 Figure S17. 13 C NMR spectrum of compound **3**.

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4 Figure S18. ¹H-¹H COSY spectrum of compound **3**.





1 Figure S19. HSQC spectrum of compound **3**.

4 Figure S20. HMBC spectrum of compound **3**.





1 Figure S21. NOESY spectrum of compound **3**.



3

4 Figure S22. Laboratory herbicidal activity against *E. crusgalli* of the positive control.

5 (a). Inhibitory activity of the positive control of acetochlor; (b). Soluble carbohydrate





- 1 Figure S23. Greenhouse herbicidal activity against *E. crusgalli* of compound **4** and the
- 2 positive control.







1 Figure S24. DEPT-135 spectrum of compound 1.

4 Figure S25. DEPT-135 spectrum of compound **2**.





1 Figure S26. DEPT-135 spectrum of compound **3**.





- 1 *Chromatographic conditions:* mobile phases: solvents A (CH₃OH) and B (H₂O); eluting
- 2 method: 10% solvent A in B for the first 0 to 5 min, then increase to 100% A at 30 min,
- followed by 5 min with 100% A; flow rate: 1.0 mL/min; UV detection: 220 nm.