

Supplementary Material

Antifungal *Streptomyces* spp. associated with the infructescences of two *Protea* spp. in South Africa

Zander R Human^{1,†}, Kyuho Moon^{2,†}, Munhyung Bae², Z. Wilhelm de Beer¹, Sangwon Cha³, Michael J. Wingfield¹, Bernard Slippers⁴, Dong-Chan Oh^{2,*}, and Stephanus N. Venter^{1,*}

¹ Department of Microbiology and Plant Pathology, Forestry and Agriculture Biotechnology Institute (FABI), University of Pretoria, Pretoria, South Africa

² Natural Products Research Institute, College of Pharmacy, Seoul National University, Seoul, Republic of Korea

³ Department of Chemistry, Hankuk University of Foreign Studies, Yongin, Republic of Korea

⁴ Department of Genetics, Forestry and Agriculture Biotechnology Institute (FABI), University of Pretoria, Pretoria, South Africa

†These authors contributed equally to this work.

*** Correspondence:**

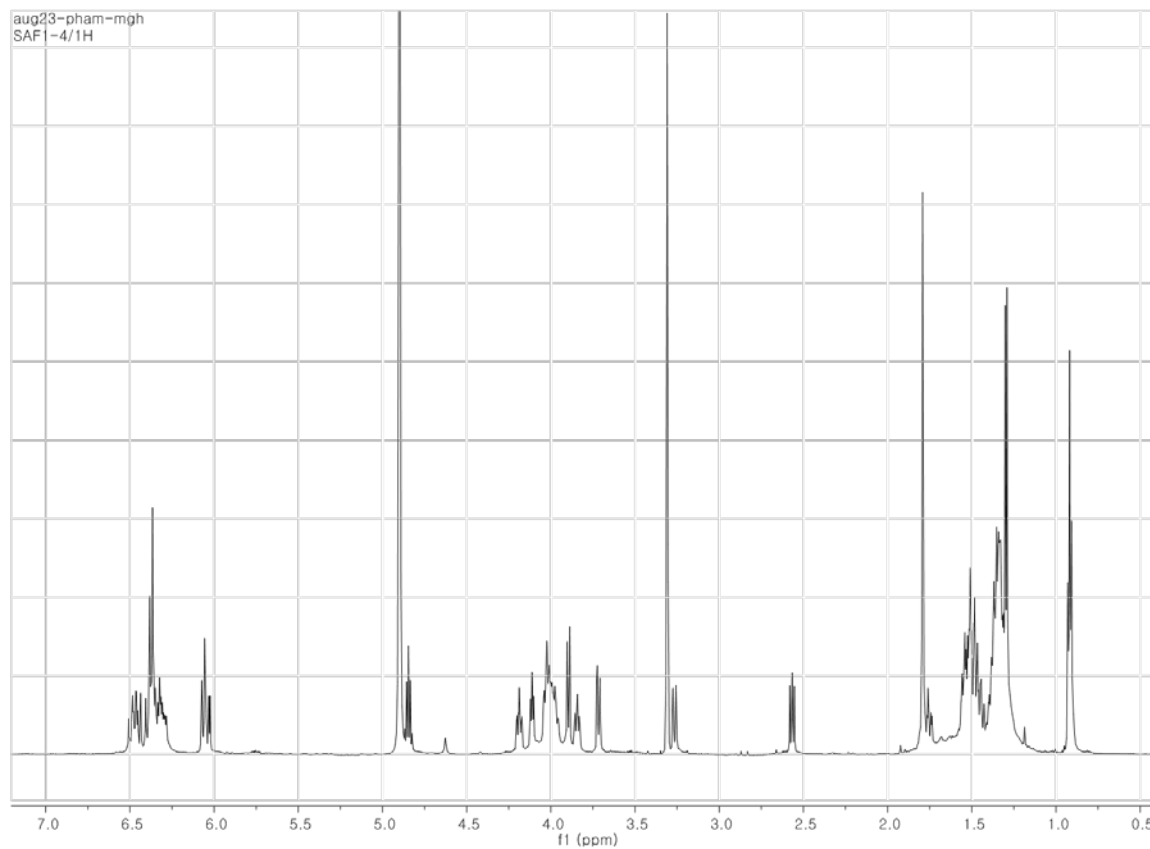
Dong-Chan Oh
dongchanoh@snu.ac.kr

Stephanus N. Venter
Fanus.Venter@up.ac.za

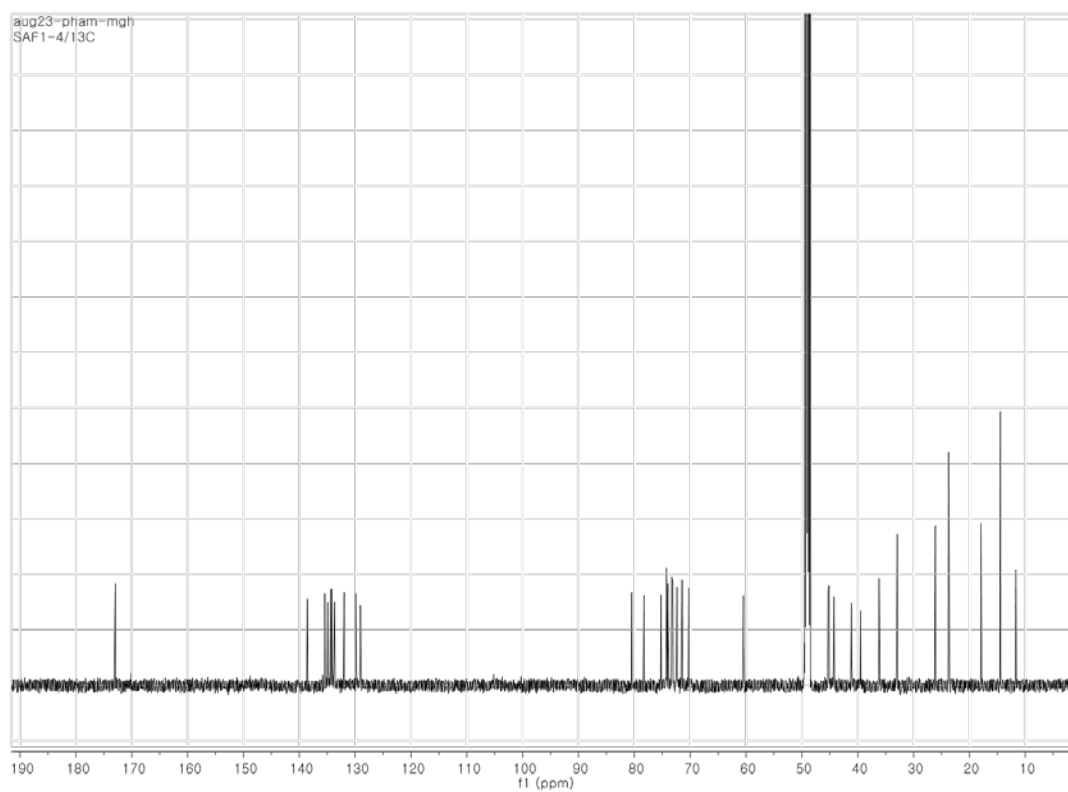
1 Supplementary Figures and Tables

1.1 Supplementary Figures

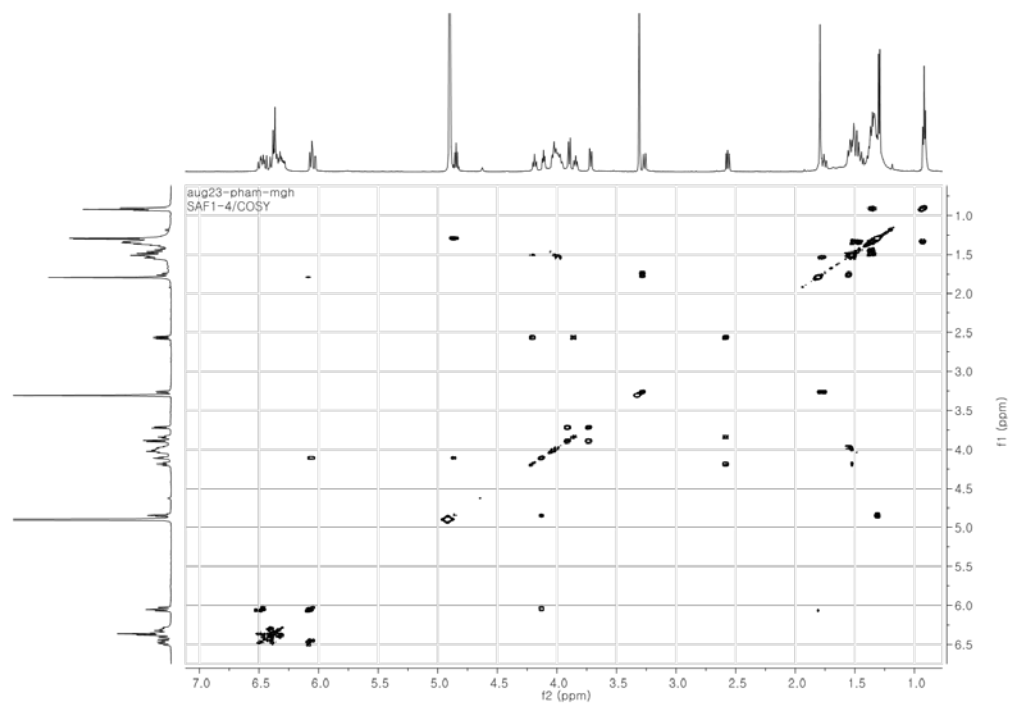
Supplementary Figure S1. ^1H NMR spectrum (600 MHz) of fungichromin in CD_3OD .

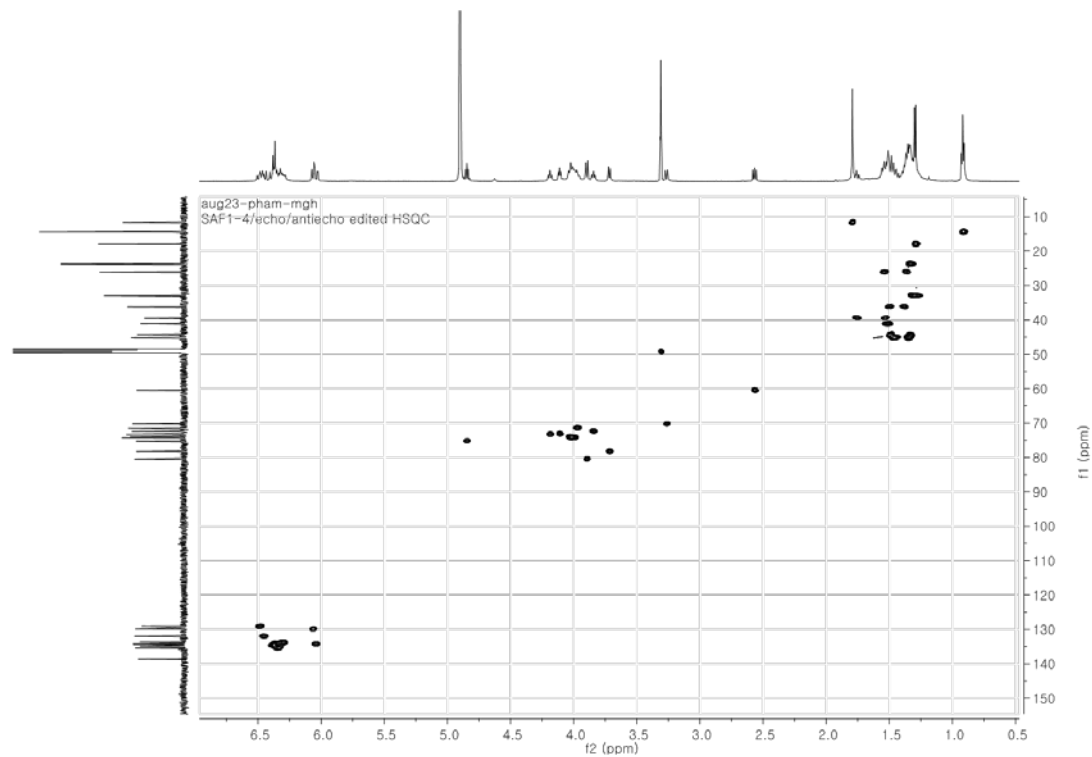
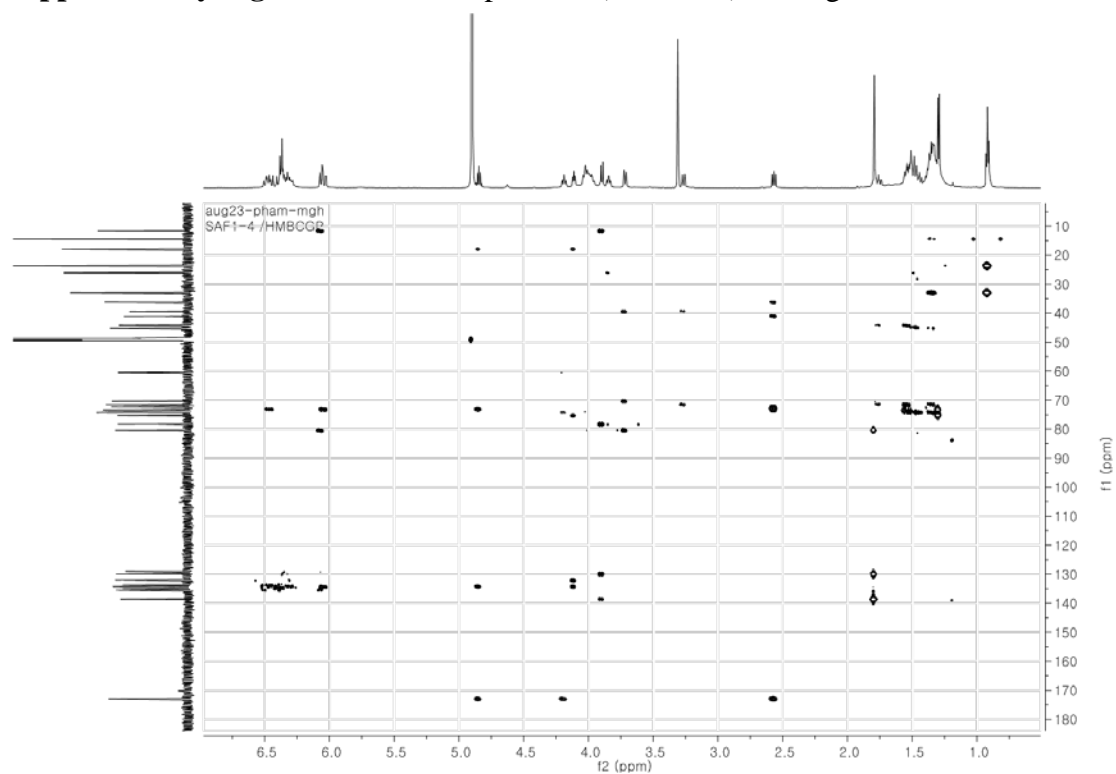


Supplementary Figure S2. ^{13}C NMR spectrum (150 MHz) of fungichromin in CD_3OD .

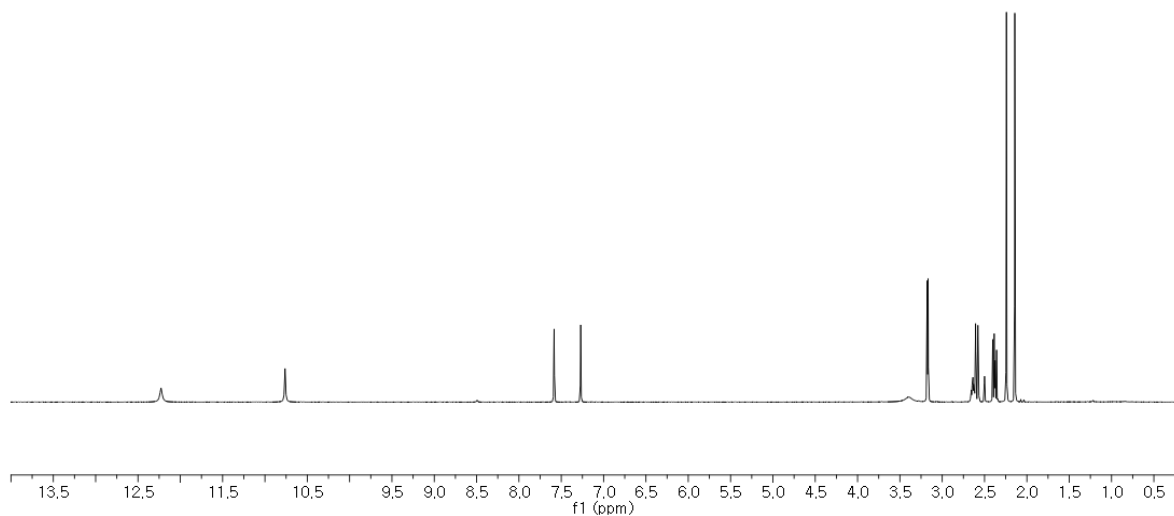


Supplementary Figure S3. COSY spectrum (600 MHz) of fungichromin in CD_3OD .

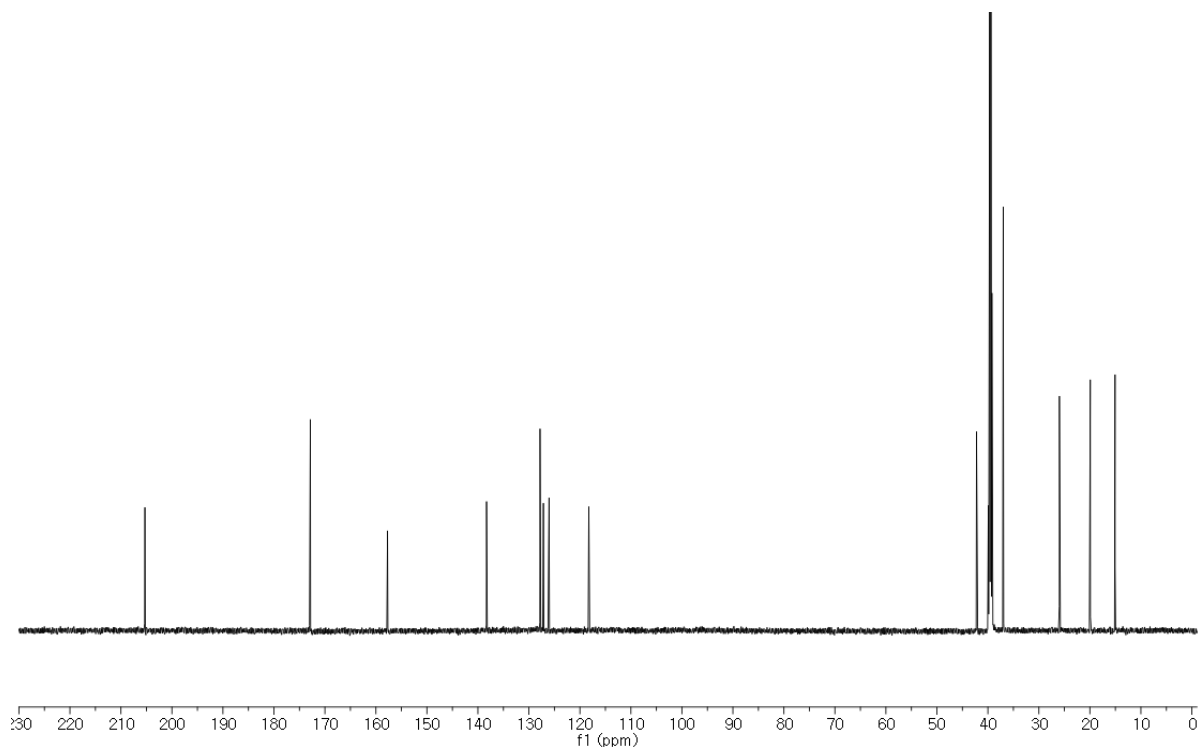


Supplementary Figure S4. HSQC spectrum (600 MHz) of fungichromin in CD₃OD.**Supplementary Figure S5.** HMBC spectrum (600 MHz) of fungichromin in CD₃OD.

Supplementary Figure S6. ^1H NMR spectrum (600 MHz) of actiphenol in $\text{DMSO-}d_6$.



Supplementary Figure S7. ^{13}C NMR spectrum (150 MHz) of actiphenol in $\text{DMSO-}d_6$.



1.2 Supplementary Tables

Supplementary Table S1. *Streptomyces* isolates from this study and others used in MLSA and their Genbank Accession numbers

Isolate name	Strain number	<i>gyrB</i>	<i>trpB</i>	<i>rpoB</i>
<i>S. murinus</i>	NRRL B-2286	KX685590	KX685586	KX685588
<i>S. costaricanus</i>	NRRL B-16897	KX685591	KX685587	KX685589
<i>S. phaeoigriseichromatogenes</i>	NRRL 2834	KX685592	KX685593	KX685594
<i>S. griseofuscus</i>	NRRL B-5429	JOFU01000001	JOFU01000006	JOFU01000024
<i>S. phaeoluteichromatogenes</i>	NRRL B-5799	HG423666	HG423654	HG423678
<i>S. misionensis</i>	CBS 885.69	HG423667	HG423655	HG423679
<i>S. griseochromogenes</i>	NRRL B-12423	CP016279	CP016279	CP016279
<i>S. levis</i>	NRRL B-16370	HG423670	HG423660	HG423682
<i>S. albidoflavus</i>	Rong <i>et al.</i> (2008)	FJ406417	FJ406450	FJ406439
<i>S. pulveraceus</i>	Guo <i>et al.</i> (2008)	HQ823601	EF055175	EF055120
<i>S. sanglieri</i>	Rong <i>et al.</i> (2010)	KU049714	KU049720	KU049718
<i>S. atratus</i>	Rong <i>et al.</i> (2010)	EF661728	EF661791	EF661770
<i>S. cinereorectus</i>	Rong <i>et al.</i> (2008)	EF661732	EF661795	EF661774
<i>Streptomyces</i> sp.	PrRe2I22	KX685530	KX685560	KX685545
<i>Streptomyces</i> sp.	PrRe2I4	KX685531	KX685561	KX685546
<i>Streptomyces</i> sp.	PrRe3I4	KX685532	KX685562	KX685547
<i>Streptomyces</i> sp.	PrNe0I20	KX685529	KX685559	KX685544
<i>Streptomyces</i> sp.	PrNe1I9	KX685522	KX685552	KX685537
<i>Streptomyces</i> sp.	PrRe1I13	KX685528	KX685558	KX685543
<i>Streptomyces</i> sp.	PrNe1I10	KX685523	KX685553	KX685538
<i>Streptomyces</i> sp.	PrRe2I24	KX685526	KX685556	KX685541
<i>Streptomyces</i> sp.	PrRe2I1	KX685525	KX685555	KX685540
<i>Streptomyces</i> sp.	PrRe2I3	KX685527	KX685557	KX685542
<i>Streptomyces</i> sp.	PrNe0I9	KX685524	KX685554	KX685539
<i>Streptomyces</i> sp.	PrNe2I2	KX685533	KX685563	KX685548
<i>Streptomyces</i> sp.	PrRe4I4	KX685534	KX685564	KX685549
<i>Streptomyces</i> sp.	PrRe3I6	KX685535	KX685565	KX685550
<i>Streptomyces</i> sp.	PrRe4I7	KX685536	KX685566	KX685551