

***Kibdelosporangium persicum* sp. nov., a new member of the  
Actinomycetes from a hot desert in Iran**

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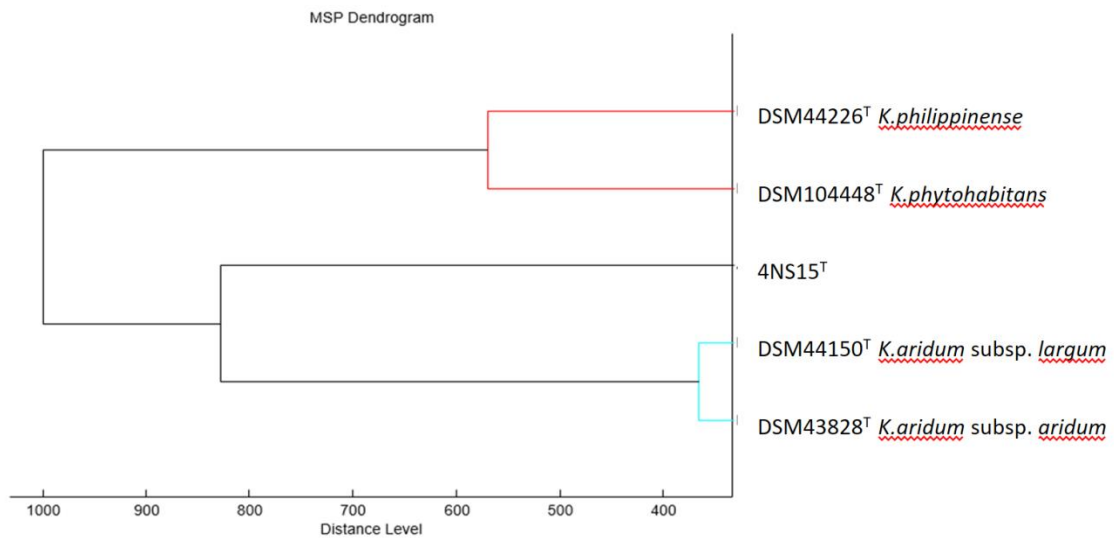
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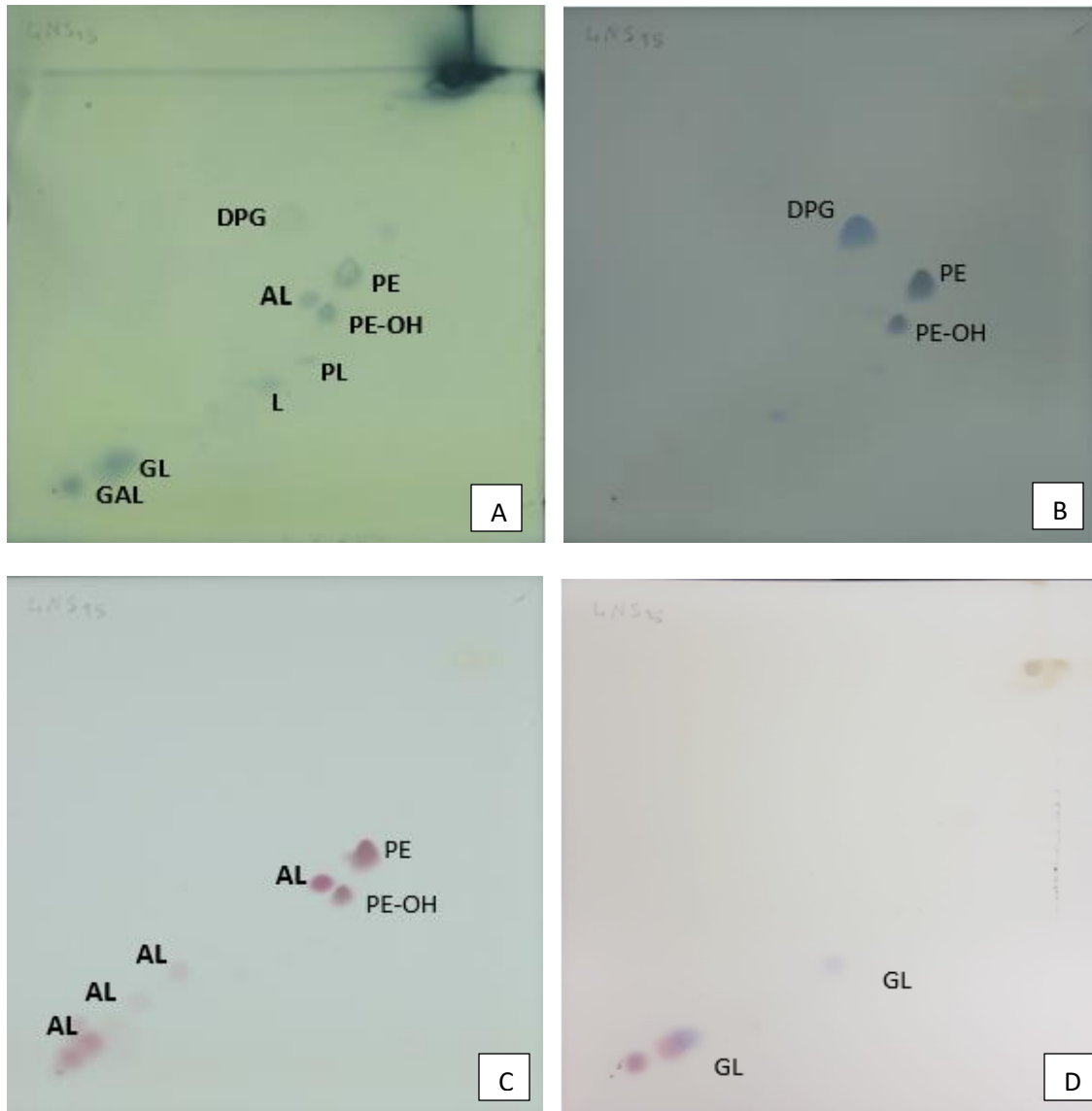
**Supplementary information.**



**Figure S1.** Colony morphology of 4NS15<sup>T</sup> after two weeks incubation at 30° C on GYM



**Figure S2.** Main spectra library (MSP) dendrogram of MALDI-TOF mass spectral profiles from five *Kibdelosporangium* species generated by the MALDI Biotyper 4.1 software.



**Figure S3.** Two-dimensional thin-layer chromatogram of the polar lipids from strain 4NS15<sup>T</sup> detected with reagents: molybdophosphoric acid reagent (A), molybdenum blue spray reagent (B), ninhydrin reagent (C), a-naphthol reagent (D). DPG, diphosphatidylglycerol; PE, phosphatidylethanolamine; PE-OH, phosphatidylhydroxyethanolamine; AL, aminolipid; GAL, glycoaminolipid; PL, phospholipid; GL, glycolipid and L, lipid.

**Table S1.** Putative biosynthetic gene clusters of isolate 4NS15<sup>T</sup> classified according to their type and similarity according to antiSMASH. Clusters marked in dark grey reside on contig edges.

Region	Type	From	To	Most similar known cluster...	...and its type	Similarity
Region 1.1	terpene, bacteriocin	457,232	538,235	merochlorin A / merochlorin B / deschloro-merochlorin A / deschloro-merochlorin B / isochloro-merochlorin B / dichloro-merochlorin B / merochlorin D / merochlorin C	Terpene + Polyketide:Type III	7%
Region 1.2	lanthipeptide	562,350	605,094	ritamycin	Polyketide	12%
Region 1.3	NRPS-like	631,191	635,042			
Region 2.1	thiopeptide, LAP, T1PKS, oligosaccharide, terpene	127,285	293,119	incodnine	Polyketide	44%
Region 3.1	NRPS	1	40,494	ulleungmycin	NRP	8%
Region 4.1	T1PKS, ectoine	159,607	222,696	kosinostatin	NRP + Polyketide	6%
Region 5.1	T2PKS	135,726	178,205	azicemicin B	Polyketide	66%
Region 5.2	T1PKS	224,725	263,382	funisamine	Polyketide	27%
Region 7.1	terpene	39,870	80,764			
Region 7.2	hyE-KS	91,744	142,156			
Region 9.1	lanthipeptide, CDPS	8,388	52,585			
Region 9.2	other, oligosaccharide	86,239	148,339	cosmomycin C	Polyketide	11%
Region 10.1	terpene	80,090	121,106	isorenieratene	Terpene	37%
Region 13.1	bacteriocin	78,215	119,018	enduracidin	NRP	10%
Region 20.1	NRPS, other	2,175	74,088	hormaomycin / hormaomycin A1 / hormaomycin A2 / hormaomycin A3 / hormaomycin A4 / hormaomycin A5 / hormaomycin A6	NRP:Cyclic depsipeptide	26%
Region 21.1	T1PKS	1	53,385	butyrolactol A	Polyketide	60%
Region 27.1	ThuA-related	1	39,669	5-isoprenylindole-3-carboxylate β-D-glycosyl ester	Other	19%
Region 27.2	T1PKS	65,819	106,032			
Region 31.1	NRPS	1	38,854	frulimicin A / frulimicin B / frulimicin C / frulimicin D	NRP	18%
Region 32.1	NRPS, lanthipeptide, NRPS-like	1	81,869	pellasoren	NRP + Polyketide:Modular type I	41%
Region 33.1	lanthipeptide	49,927	85,262			
Region 37.1	NRPS, T1PKS	21,610	79,607	teicoplanin	NRP	10%
Region 41.1	NRPS, oligosaccharide, NRPS-like	1	63,680	cytorhodin	Polyketide	17%
Region 43.1	ladderane, arylpolyene, terpene, NRPS, other	1	61,365	peptidinnamin E	NRP + Polyketide	26%
Region 45.1	indole	175,930	217,540	frankiamicin	Polyketide	14%
Region 47.1	lassopeptide, NRPS-like, bacteriocin, NRPS	1	52,856	ficellomycin	NRP	14%
Region 50.1	T1PKS	1	38,362	mediomycin A	Polyketide	36%
Region 53.1	T1PKS	1	38,152	nystatin-like Pseudonocardia polyene	Polyketide	26%
Region 55.1	NRPS	3,075	36,759	marformycin A / marformycin B / marformycin C / marformycin D / marformycin E / marformycin F	NRP	8%
Region 56.1	terpene	42,174	83,247	lasalocid	Polyketide	10%
Region 56.1	NRPS	1	28,835	taromycin A	NRP-Ca <sup>2+</sup> -dependent lipopeptide	23%
Region 60.1	T1PKS	1	25,507	lomete acid A	Polyketide	19%
Region 61.1	other	1	21,030	apoptolidin	Polyketide	17%
Region 63.1	T1PKS	1	14,114	apoptolidin	Polyketide	15%
Region 67.1	terpene	65,754	107,961	geosmin	Terpene	100%
Region 68.1	T1PKS	1	11,126			
Region 69.1	T1PKS	1	8,364	nigericin	Polyketide:Modular type I	55%
Region 70.1	NRPS	1	7,832			
Region 73.1	T1PKS	1	5,042			
Region 74.1	NRPS	1	4,523			
Region 75.1	NRPS	1	4,445			
Region 76.1	T1PKS	1	4,044			
Region 78.1	NRPS, lanthipeptide	1	68,068	daptomycin	NRP	3%
Region 78.2	NRPS	310,642	338,030	albachelin	NRP	70%
Region 89.1	ectoine	1	31,230	ectoine	Other	100%
Region 89.2	oligosaccharide, terpene	260,636	325,669	KS-505a	Terpene	7%

**Table S2.** Fatty acid composition in percentage, 4NS15 and the most related *Kibdelosporangium* species (-, not detected).

Fatty acid	4NS15 <sup>T</sup>	DSM43828 <sup>T</sup>	DSM44226 <sup>T</sup>	DSM104448 <sup>T</sup>
		<i>K.aridum</i>	<i>K.philippinense</i>	<i>K.phytohabitans</i>
saturated straight chain				
C14:0	1.4	2.2	2.9	3
C15:0	3.2	0.6	-	-
C16:0	25.6	8.9	4.4	4.7
C17:0	6.6	0.5	-	-
C18:0	1.3	-	-	-
Saturated branched				
<i>iso</i> -C14:0	-	2.8	1.6	1.8
<i>iso</i> -C15:0	16.8	12.7	16.1	11.3
<i>iso</i> -C16:0	25	22.8	13.3	19.9
<i>iso</i> -C17:0	-	2.1	1.4	2
<i>anteiso</i> -C15:0	8.4	6.7	5.4	2.4
<i>anteiso</i> -C17:0	7.1	9.9	4.7	4.2
cy C17:0	-	-	0.7	1.2
<i>iso</i> -C18:0	-	0.4	-	-
Unsaturated				
c/t C16:1 $\omega$ 7	-	4.5	16.5	16.3
<i>iso</i> -C16:1 $\omega$ 8	-	0.7	0.9	7.7
<i>iso</i> -C17:1 $\omega$ 8C	1.8	5.2	10.3	0.3
C17:1 $\omega$ 6C	-	5.3	8.4	12.6
C18:1 $\omega$ 5	-	3	3.3	2.5