

Table S2. PhRS abundance in the genomes of *Sinorhizobium* spp., *Rhizobium* spp. and *Mesorhizobium* sp. strains (according to PHASTER)

Species	Strain	BioSample	Replicon (chromosome/plasmid)	Number of prophages		
				on replicon	PhRS-16-3- like***	PhRS-16-3- orph****
	Rm2011	SAMN02603522	chr	1	0	0
			pSymA	4	0	0
			pSymB	1	0	0
	Rm1021	SAMEA3283068	chr	1	0	0
			pSymA	4	0	0
			pSymB	2	0	0
	AK76*	SAMN17104055	chr	2	1 <sup>1/2</sup>	0
			pSymA	3	0	0
			pSymB	1	0	0
			pAK76	3	0	0
	L6-AK89*	SAMN22420025	chr	2	0	0
			pCpl	3	0	0
			pSymA	0	0	0
			pSymB	3	0	0
	AK83* <sup>φ</sup>	SAMN00017059	chr 1	8	0	0
			chr 2	2	0	0
			chr 3	7	0	0
			pSINME01	3	0	0
			pSINME02	0	0	0
	AK21* <sup>φ</sup>	SAMN08428886	chr	9	0	2
			pSymA	2	0	0
			pSymB	2	0	0
			pSmeAK21a	2	0	0
			pSmeAK21b	2	0	0
	AK57* <sup>φ</sup>	SAMN24288876	chr	4	0	2
			pSymA	6	0	0
			pSymB	3	0	0
	S35m** <sup>φ</sup>	SAMN16812329	chr	2	0	1
			pSymA	2	0	0
			pSymB	1	0	0
	NV1.1.1.**	this work	chr	2	1 <sup>1/2</sup>	0
			pSymA	0	0	0
			pSymB	2	0	0
	B401	SAMN06227501	chr	1	0	0
			pSymA	1	0	0
			pSymB	3	0	0
	USDA1021 <sup>φ</sup>	SAMN07175167	chr	5	0	2 <sup>2</sup>
			accessoryA	5	0	0
			psymA	2	0	0
			psymB	2	0	1
	USDA1157 <sup>φ</sup>	SAMN07175169	chr	8	0	1
			accessoryA	0	0	0
			psymA	2	0	0

*Sinorhizobium  
meliloti*

			psymB	2	0	1 <sup>1</sup>
			chr	2	0	0
			psymA	2	0	0
			psymB	2	0	0
			chr	8	0	0
			pSymA	5	0	0
			pSymB	2	0	0
			pSmeRU11a	0	0	0
			pSmeRU11b	1	0	0
			pSmeRU11c	1	0	0
			pSmeRU11d	3	0	0
			chr	7	0	0
			pSmeSM11c	7	0	0
			pSmeSM11d	3	0	0
			pSmeSM11a	0	0	0
			pSmeSM11b	0	0	0
			chr	4	0	0
			pSINMEB01	0	0	0
			pSINMEB02	3	0	0
			chr	2	0	0
			pRmeGR4a	0	0	0
			pRmeGR4b	3	0	0
			pRmeGR4c	1	0	0
			pRmeGR4d	2	0	0
			chr	2	0	0
			pSym	4	0	0
			pSymA	1	0	0
			chr	3	0	1 <sup>2</sup>
			pRRI128_1	3	0	0
			pRRI128_2	1	0	0
			pRRI128_3	5	0	0
			pRRI128_4	3	0	0
			pRRI128_5	2	0	0
			chr	2	0	1 <sup>2</sup>
			psymA	2	0	0
			psymB	3	0	0
			chr	3	0	0
			accessoryA	0	0	0
			psymA	1	0	0
			psymB	4	0	0
			chr	4	0	2 <sup>2</sup>
			accessoryA	0	0	0
			psymA	4	0	0
			psymB	3	0	0
			chr	2	1 <sup>4</sup>	1 <sup>2</sup>
			pSymA	1	0	0
			pSymB	2	0	0
			chr	3	1 <sup>1/2</sup>	1
			pSymA	3	0	0
			pSymB	1	0	0

	Rm41 <sup>3Φ</sup>	SAMN07175165	chr	4	0	2 <sup>2</sup>
			accessoryA	1	0	0
			psymA	3	0	0
			psymB	3	0	0
	RCAM1115 <sup>Φ</sup>	SAMN14403975	chr	13	0	1
			p_1	4	0	0
			p_2	3	0	0
			p_3	3	0	0
	RCAM1750 <sup>Φ</sup>	SAMN14403976	chr	3	0	1 <sup>2</sup>
			p_1	5	0	0
			p_2	1	0	0
	ABS7	SAMN18865712	chr	4	1 <sup>1/2</sup>	1
			pSymA	2	0	0
			pSymB	1	0	0
	M270 <sup>Φ</sup>	SAMN07175164	chr	9	0	3
			accessoryA	6	0	0
accessoryB			4	0	0	
accessoryC			1	0	0	
psymA			9	0	0	
psymB			1	0	0	
M162 <sup>Φ</sup>	SAMN07175163	chr	6	0	2 <sup>2</sup>	
		accessoryA	2	0	0	
		psymA	2	0	0	
		psymB	1	0	0	
T073 <sup>Φ</sup>	SAMN07175166	chr	5	0	1 <sup>2</sup>	
		accessoryA	0	0	0	
		psymA	2	0	0	
		psymB	1	0	0	
In total for <i>S. meliloti</i>		31	121	339	5 <sup>4</sup>	27
						31
<i>S. medicae</i>	WSM419 <sup>Φ</sup>	SAMN02598363	chr	4	1 <sup>1/2</sup>	2 <sup>2</sup>
			pSMED01	1	0	0
			pSMED02	5	0	0
			pSMED03	3	0	0
	WSM1115 <sup>Φ</sup>	SAMN23416899	chr	13	0	2 <sup>2</sup>
			pWSM1115_1	1	0	0
			pWSM1115_2	4	0	0
			pWSM1115_3	2	0	0
<i>S. fredii</i>	CCBAU 25509	SAMN03761947	chr	5	1 <sup>1/2</sup>	0
			pSF25509a	4	0	0
			pSF25509b	1	0	0
	NGR234	SAMN02603283	chr	4	0	0
			pNGR234a	2	0	0
			pNGR234b	2	0	0
	CCBAU 83666 <sup>Φ</sup>	SAMN07445561	chr	3	0	1
			pSF83666a	7	0	0
			pSF83666b	4	0	0
			pSF83666d	1	0	1
	NXT3 <sup>Φ</sup>	SAMN07824032	chr	1	0	0
			pSfreNXT3a	2	0	0

	NXT3 <sup>ϕ</sup>	SAMN07824032	pSfreNXT3b	2	0	0
			pSfreNXT3c	0	0	0
	CCBAU 45436	SAMN03761948	chr	3	0	0
			pSF45436a	5	0	0
			pSF45436b	1	0	0
			pSF45436d	2	0	0
			pSF45436e	1	0	0
<b>In total for <i>Sinorhizobium</i> spp.:</b>		<b>38</b>	<b>168</b>	<b>422</b>	<b>7<sup>4</sup></b>	<b>33</b>
						<b>39</b>
<i>Rh. lentis</i>	BLR27	SAMN18139228	chr	3	1	0
			p1	0	0	0
			p2	0	0	0
			p3	0	0	0
			p4	1	0	0
<i>Rh</i> spp.	NLR16a	SAMN18525573	chr	2	1	0
			p1	0	0	0
			p2	0	0	0
			p3	0	0	0
			p4	1	0	0
			p5	0	0	0
			p6	0	0	0
			p7	1	0	0
<i>Rh. leguminosarum</i>	OyaliB	SAMN18139820	chr	1	1 <sup>1</sup>	0
			p1	0	0	0
			p2	0	0	0
			p3	2	0	0
			p4	0	0	0
			p5	0	0	0
<i>Mesorhizobium</i> sp.	DCY119	SAMN09829652	chr	4	1	1 <sup>5</sup>
<b>In total:</b>		<b>42</b>	<b>188</b>	<b>437</b>	<b>11<sup>4</sup></b>	<b>34<sup>5</sup></b>
						<b>43</b>

<sup>1</sup> - prophage contains an ORF encoding a full-length TfpH protein (in the case of *S. meliloti* ABS7 strain carrying a full-length and a truncated sequence, the truncated sequence is not involved in the phylogenetic analysis); <sup>2</sup> – prophage contains an ORF encoding p019 protein (in the case of *S. meliloti* USDA1021, HM006 and M162 and *S. medicae* WSM419 strains, on one prophage; in the case of *S. meliloti* Rm41 and *S. medicae* WSM1115 strains, on both prophages); <sup>3</sup> – BioSample SAMN07175165 analyzed; <sup>4</sup> – prophage of *S. meliloti* RMO17 with low nucleotide similarity according to BLASTn (Cov < 1%), was not analyze; <sup>5</sup> – PhRS-orph-16-3 of *Mesorhizobium* sp. DCY119 did not analyze; \* – strains isolated from saline Mugodzhar region, part of the introgressive center of alfalfa hybridization in NW Kazakhstan; \*\* – strains isolated from mountainous region of Dagestan, part of the origin of diversity of cultivated plants in the Caucasus; \*\*\* - prophages similar to phage 16-3 according to Phaster; \*\*\*\* - prophages contained single ORFs related to phage 16-3; <sup>ϕ</sup> – genomes contained phiLM21-like prophages