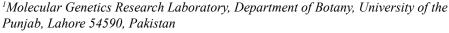
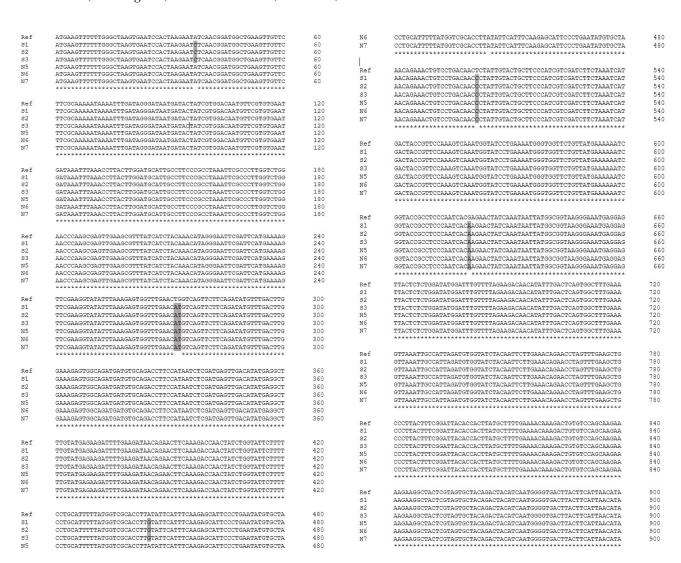
Supplementary Material

Identification and Genotyping of SNPs in *RKM1* and *RKM4* Genes of *Sordaria fimicola*

Iqra Mobeen1*, Rabia Arif1*, Maimoona Ilyas1, Siu Fai Lee2 and Muhammad Saleem1



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Ref	CAAAATGAACAATGTTTAGAACCATTACTGGATCTTTTTACCTACC	960	Ref	MKFFGLSESTKNINGWLKLFFAKIKFDRDNDTIVDNVRVNDKFKPYLDALPSRLNSPLVW	60
S1	CAAAATGAACAATGTTTAGAACCATTACTGGATCTTTTTACCTACC	960	S1	MKFFGLSESTKNINGWLKLFFAKIKFDRDNDTIVDNVRVNDKFKPYLDALPSRLNSPLVW	60
52	CAAAATGAACAATGTTTAGAACCATTACTGGATCTTTTTACCTACC	960			60
83	CAAAATGAACAATGTTTAGAACCATTACTGGATCTTTTTACCTACC	960	82	MKFFGLSESTKNLNGWLKLFFAKIKFDRDNDTIVDNVRVNDKFKPYLDALPSRLNSPLVW	
N5	CAAAATGAACAATGTTTAGAACCATTACTGGATCTTTTTACCTACC	960	83	MKFFGLSESTKNLNGWLKLFFAKIKFDRDNDTIVDNVRVNDKFKPYLDALPSRLNSPLVW	60
N6	CAAAATGAACAATGTTTAGAACCATTACTGGATCTTTTTACCTACC	960	N5	MKFFGLSESTKNINGWLKLFFAKIKFDRDNDTIVDNVRVNDKFKPYLDALPSRLNSPLVW	60
N7	CAAAATGAACAATGTTTAGAACCATTACTGGATCTTTTTACCTACC	960	N6	MKFFGLSESTKNINGWLKLFFAKIKFDRDNDTIVDNVRVNDKFKPYLDALPSRLNSPLVW	60
	***********************************		N7	MKFFGLSESTKNINGWLKLFFAKIKFDRDNDTIVDNVRVNDKFKPYLDALPSRLNSPLVW	60
Ref	GAGGAGGATCTACACGATTTGAGAGCCCGTTTGCAGGGTATACAAATGCTACGAAATGCA	1020			
S1	GAGGAGGATCTACACGATTTGAGAGCCCGTTTGCAGGGTATACAAATGCTACGAAATGCA	1020	Ref	NPSELKRLSSTNIGNSIHEKFEGIFKEWFELVSSSDMFDLERVADDVQTFHNLDELTYEA	120
S2	GAGGAGGATCTACACGATTTGAGAGCCCGTTTGCAGGGTATACAAATGCTACGAAATGCA	1020	S1	NPSELKRLSSTNIGNSIHEKFEGIFKEWFEHVSSSDMFDLERVADDVQTFHNLDELTYEA	120
83	GAGGAGGATCTACACGATTTGAGAGCCCGTTTGCAGGGTATACAAATGCTACGAAATGCA	1020	s2	NPSELKRLSSTNIGNSIHEKFEGIFKEWFEHVSSSDMFDLERVADDVQTFHNLDELTYEA	120
N5	GAGGAGGATCTACACGATTTGAGAGCCCGTTTGCAGGGTATACAAATGCTACGAAATGCA	1020	83	NPSELKRLSSTNIGNSIHEKFEGIFKEWFEHVSSSDMFDLERVADDVQTFHNLDELTYEA	120
N6	GAGGAGGATCTACACGATTTGAGAGCCCGTTTGCAGGGTATACAAATGCTACGAAATGCA	1020	N5	하는 사용하게 가면 있다. 회사에 가는 사용하는 것은 사용하는 것은 사용하는 사람들이 가장 하는 것이 되었다. 그는 사용하는 것은 그는 사용하는 것은 그를 보고 있다면 하는 것이 되었다.	120
N7	GAGGAGGATCTACACGATTTGAGAGCCCGTTTGCAGGGTATACAAATGCTACGAAATGCA	1020	N6	NPSELKRLSSTNIGNSIHEKFEGIFKEWFEHVSSSDMFDLERVADDVQTFHNLDELTYEA	120
				NPSELKRLSSTNIGNSIHEKFEGIFKEWFEHVSSSDMFDLERVADDVQTFHNLDELTYEA	
Ref	TTGCAGAGCAAACTCAACAGCATTACTGGACCACCTGCAACTGATGACTCTTATGCAATT	1080	N7	NPSELKRLSSTNIGNSIHEKFEGIFKEWFEHVSSSDMFDLERVADDVQTFHNLDELTYEA	120
S1	TTGCAGAGCAAACTCAACAGCATTACTGGACCACCTGCAACTGATGACTCTTATGCAATT	1080		***************************************	
82	TTGCAGAGCAAACTCAACAGCATTACTGGACCACCTGCAACTGATGACTCTTATGCAATT	1080			
83	TTGCAGAGCAAACTCAACAGCATTACTGGACCACCTGCAACTGATGACTCTTATGCAATT	1080	Ref	LYEKILKITELQRPTIWYSFPAFLWSHLIFISRAFPEYVLNRNCPDNSIVLLPIVDLLNH	180
N5	TTGCAGAGCAAACTCAACAGCATTACTGGACCACCTGCAACTGATGACTCTTATGCAATT	1080	S1	LYEKILKITELQRPTIWYSFPAFLWSHLVFISRAFPEYVLNRNCPDNPIVLLPIVDLLNH	180
N6	TTGCAGAGCAAACTCAACAGCATTACTGGACCACCTGCAACTGATGACTCTTATGCAATT	1080	32	LYEKILKITELQRPTIWYSFPAFLWSHLVFISRAFPEYVLNRNCPDNPIVLLPIVDLLNH	180
N7	TTGCAGAGCAAACTCAACAGCATTACTGGACCACCTGCAACTGATGACTCTTATGCAATT	1080	83	LYEKILKITELQRPTIWYSFPAFLWSHLVFISRAFPEYVLNRNCPDNPIVLLPIVDLLNH	180
	*****************		N5	LYEKILKITELORPTIWYSFPAFLWSHLIFISRAFPEYVLNRNCPDNPIVLLPIVDLLNH	180
			N6	LYEKILKITELORPTIWYSFPAFLWSHLIFISRAFPEYVLNRNCPDNPIVLLPIVDLLNH	180
Ref	GATCCTTACAGAGTCTATTGTGCTGACGTTTATACTAAAGGTCAAAAACAAATTTTAAAA	1140	N7	LYEKILKITELQRPTIWYSFPAFLWSHLIFISRAFPEYVLNRNCPDNPIVLLPIVDLLNH	180
S1	GATCCTTACAGAGTCTATTGTGCTGACGTTTATACTAAAGGTCAAAAACAAATTTTAAAA	1140	24.7	*********************	100
S2	GATCCTTACAGAGTCTATTGTGCTGACGTTTATACTAAAGGTCAAAAACAAATTTTAAAA	1140			
83	GATCCTTACAGAGTCTATTGTGCTGACGTTTATACTAAAGGTCAAAAACAAATTTTAAAA	1140	201 2		2002
N5	GATCCTTACAGAGTCTATTGTGCTGACGTTTATACTAAAGGTCAAAAACAAATTTTAAAA	1140	Ref	DYRSKVKWYPENGWFCYEKIGTASQSRELSNNYGGKGNEELLSGYGFVLEDNIFDSVALK	240
N6	GATCCTTACAGAGTCTATTGTGCTGACGTTTATACTAAAGGTCAAAAACAAATTTTAAAA	1140	S1	DYRSKVKWYPENGWFCYEKIGTASQSQELSNNYGGKGNEELLSGYGFVLEDNIFDSVALK	240
N7	GATCCTTACAGAGTCTATTGTGCTGACGTTTATACTAAAGGTCAAAAACAAATTTTAAAA	1140	82	DYRSKVKWYPENGWFCYEKIGTASQSQELSNNYGGKGNEELLSGYGFVLEDNIFDSVALK	240
107 12		2222	83	DYRSKVKWYPENGWFCYEKIGTASQSQELSNNYGGKGNEELLSGYGFVLEDNIFDSVALK	240
Ref	GAGGCTTTAACGAGGTTGAAAAAACTAGAAAAACAATGCTGTCAGAGAACAAGCACCAA	1200	N5	DYRSKVKWYPENGWFCYEKIGTASQSQELSNNYGGKGNEELLSGYGFVLEDNIFDSVALK	240
S1	GAGGCTTTAACGAGGTTGAAAAAACTAGTAAAAACAATGCTGTCAGAGAACAAGCACCAA	1200	N6	DYRSKVKWYPENGWFCYEKIGTASQSQELSNNYGGKGNEELLSGYGFVLEDNIFDSVALK	240
S2	GAGGCTTTAACGAGGTTGAAAAAACTAGTAAAAACAATGCTGTCAGAGAACAAGCACCAA	1200	N7	DYRSKVKWYPENGWFCYEKIGTASQSQELSNNYGGKGNEELLSGYGFVLEDNIFDSVALK	240
83 N5	GAGGCTTTAACGAGGTTGAAAAACTAGTAAAAACATGCTGTCAGAGAACAAGCACCAA GAGGCTTTAACGAGGTTGAAAAAACTAGTAAAAACAATGCTGTCAGAGAACAAGCACCAA	1200		***************************************	
N6	GAGGCTTTAACGAGGTTGAAAAAACTAGTAAAAACAATGCTGTCAGAGAACAAGCACCAA GAGGCTTTAACGAGGTTGAAAAAACTAGTAAAAACAATGCTGTCAGAGAACAAGCACCAA	1200 1200	Ref	$\tt VKLPLDVVSTILETEPSLKLPLLSDYTTYAFENKDCVQQEKKATRSATDYINGVTYFINI$	300
N7	GAGGCTTTAACGAGGTTGAAAAAACTAGTAAAAACAATGCTGTCAGAGAACAAGCACCAA GAGGCTTTAACGAGGTTGAAAAAACTAGTAAAAACAATGCTGTCAGAGAACAAGCACCAA	1200	81	VKLPLDVVSTILETEPSLKLPLLSDYTTYAFENKDCVQQEKKATRSATDYINGVTYFINI	300
IN 7	**************************************	1200	52	VKLPLDVVSTILETEPSLKLPLLSDYTTYAFENKDCVQQEKKATRSATDYINGVTYFINI	300
			S3	VKLPLDVVSTILETEPSLKLPLLSDYTTYAFENKDCVQQEKKATRSATDYINGVTYFINI	300
Ref	TTGCTAACCATGAGCAAAATTCTTAAGAATGACCCTGCTTTTGCAGAAACTGAATTACCT	1260	N5	VKLPLDVVSTILETEPSLKLPLLSDYTTYAFENKDCVQQEKKATRSATDYINGVTYFINI	300
S1	TTGCTAACCATGAGCAAAATTCTTAAGAAAGACCCTGCTTTTGCAGAAACTGAATTACCT	1260	N6	VKLPLDVVSTILETEPSLKLPLLSDYTTYAFENKDCVQQEKKATKSATDIINGVTYFINI VKLPLDVVSTILETEPSLKLPLLSDYTTYAFENKDCVQQEKKATKSATDYINGVTYFINI	300
S2	TTGCTAACCATGAGCAAAATTCTTAAGAAAGACCCTGCTTTTGCAGAAACTGAATTACCT	1260	N7	VKLPLDVVSTILETEPSLKLPLLSDYTTYAFENKDCVOOEKKATRSATDYINGVTYFINI	300
83	TTGCTAACCATGAGCAAAATTCTTAAGAAAGACCCTGCTTTTGCAGAAACTGAATTACCT	1260	IN 7	VADPDDVVSTIDETEPSDADPDDSSTTTAPENADCVQQEAAATASTIDIINGVTIFINI	300
N5	TTGCTAACCATGAGCAAAATTCTTAAGAAAGACCCTGCTTTTGCAGAAACTGAATTACCT	1260			
N6	TTGCTAACCATGAGCAAAATTCTTAAGAAAGACCCTGCTTTTGCAGAAACTGAATTACCT	1260	12112		
N7	TTGCTAACCATGAGCAAAATTCTTAAGAAAGACCCTGCTTTTGCAGAAACTGAATTACCT	1260	Ref	QNEQCLEPLLDLFTYLSKAEEEDLHDLRARLQGIQMLRNALQSKLNSITGPPATDDSYAI	360
	**********************		S1	QNEQCLEPLLDLFTYLSKAEEEDLHDLRARLQGIQMLRNALQSKLNSITGPPATDDSYAI	360
			S2	QNEQCLEPLLDLFTYLSKAEEEDLHDLRARLQGIQMLRNALQSKLNSITGPPATDDSYAI	360
Ref	TCGCTGTTCAGCAACGAAGATGGTGAAGAGGTCATCTTTGAATCTACTTATGATTTATTG	1320	83	QNEQCLEPLLDLFTYLSKAEEEDLHDLRARLQGIQMLRNALQSKLNSITGPPATDDSYAI	360
S1	TCGCTGGACAGCAACGAAGATGGTGAAGAGGTCATCTTTGAATCTACTTATGATTTATTG	1320	N5	QNEQCLEPLLDLFTYLSKAEEEDLHDLRARLQGIQMLRNALQSKLNSITGPPATDDSYAI	360
52	TCGCTGGACAGCAACGAAGATGGTGAAGAGGTCATCTTTGAATCTACTTATGATTTATTG	1320	N6	QNEQCLEPLLDLFTYLSKAEEEDLHDLRARLQGIQMLRNALQSKLNSITGPPATDDSYAI	360
83 N5	TCGCTGGACAGCAACGAGATGGTGAAGAGGTCATCTTTGAATCTACTTATGATTTATTG	1320	N7	QNEQCLEPLLDLFTYLSKAEEEDLHDLRARLQGIQMLRNALQSKLNSITGPPATDDSYAI	360
N6	TCGCTGGACAGCAACGAAGATGGTGAAGAGGTCATCTTTGAATCTACTTATGATTTATTG TCGCTGGACAGCAACGAAGATGGTGAAGAGGTCATCTTTGAATCTACTTATGATTTATTG	1320 1320		**********************************	
N7	TCGCTGGACAGCAACGAAGATGGTGAAGAGGTCATCTTTGAATCTACTTATGATTTATTG	1320			
IN 7	***** ******************************	1320	Ref	DPYRVYCADVYTKGQKQILKEALTRLKKLEKTMLSENKHQLLTMSKILKNDPAFAETELP	420
			S1	DPYRVYCADVYTKGQKQILKEALTRLKKLVKTMLSENKHQLLTMSKILKKDPAFAETELP	420
			82	DPYRVYCADVYTKGQKQILKEALTRLKKLVKTMLSENKHQLLTMSKILKKDPAFAETELP	420
~			83	DPYRVYCADVYTKGQKQILKEALTRLKKLVKTMLSENKHQLLTMSKILKKDPAFAETELP	420
Supplementary Fig. 1. Multiple sequence alignment of			N5	DPYRVYCADVYTKGQKQILKEALTRLKKLVKTMLSENKHQLLTMSKILKKDPAFAETELP	420
			N6	DPYRVYCADVYTKGQKQILKEALTRLKKLVKTMLSENKHQLLTMSKILKKDPAFAETELP	420
RKM1 region of NFS and SFS strains of S. fimicola with				DPYRVYCADVYTKGQKQILKEALTRLKKLVKTMLSENKHQLLTMSKILKKDPAFAETELP	420
	pect to the Saccharomyces cerevisiae.			***************************************	
		and	Ref	SLFSNEDGEEVIFESTYDLLILWILLKTKKNSYPTKYEWVGOOYTNFKOTAYISDDAKAF	440
Note: Symbol (*) showing conserved sites, space and				SLDSNEDGEEVIFESTYDLL	440
· · · · · · · · · · · · · · · · · · ·			S1 S2	SLDSNEDGEEVIFESTYDLL	440
mg	hlighted regions showing SNPs.		S2 S3	SLDSNEDGEEVIFESTYDLLSLDSNEDGEEVIFESTYDLL	440
			N5		
			10000	SLDSNEDGEEVIFESTYDLLSLDSNEDGEEVIFESTYDLL	440
			N6		440 440
			N7	SLDSNEDGEEVIFESTYDLL	440

Supplementary Fig. 2. Multiple sequence alignment of amino acid sequence of RKM1 protein of different strains of S. fimicola with respect to the S. cerevisiae amino acid sequence to observe the genetic variations. Symbol (*) showing fully conserved sites, symbol (:) depicting conservation between groups of strongly similar properties, space and highlighted regions showing polymorphic sites.

Ref N5 N6 N7 S3 S1 S2

Ref	CTGAACGAAACCGGATCGTGGGAAGGTTTAATTATCTGTATACTTTATGAGATGGAAGTT	60
N5	CTGAACGAAACCGGATCGTGGGAAGGTTTAATTATCTGTATACTTTATGGGATGGAAGTT	60
16	CTGAACGAAACCGGATCGTGGGAAGGTTTAATTATCTGTATACTTTATGAGATGGAAGTT	60
N7 33	CTGAACGAAACCGGATCGTGGGAAGGTTTAATTATCTGTATACCTTTATGAGATGGAAGTT CTGAACGAAACCGGATCGTGGGAAGGTTTAATTAACTGTATACCTTTATGGGATGGAAGTT	60 60
33 31	CTGAACGAAACCGGATCGTGGGAAGGTTTAATTAACTGTATACTTTATGGGATGGAAGTT CTGAACGAAACCGGATCGTGGGAAGGTTTAATTAACTGTATACTTTATGAGATGGAAGTT	60
32	CTGAACGAAACCGGATCGTGGGAAGGTTTAATTAACTGTATACTTTATGGGATGGAAGTT	60

Ref	TTGCAAGAAGAAGCCGATGGGCGCCTTACTTTAAAGTTTGGAACAAACCAAGCGATATG	120
N5	TTGCAAGAAAGAAGCCGATGGGCGCCTTACTTTAAAGTTTGGAACAAACCAAGCGATATG	120
N6	TTGCAAGAAGAAGCCGATGGGCGCCTTACTTTAAAGTTTGGAACAAACCAAGCGATATG	120
N7	TTGCAAGAAGAAGCCGATGGGCGCCTTACTTTAAAGTTTGGAACAAACCAAGCGATATG	120
33	TTGCAAGAAGAAGCCGATGGGCGCCTTACTTTAAAGTTTTGGAACAACCAAGCGATATG	120
31 32	TTGCAAGAAAGAAGCCGATGGGCGCCTTACTTTAAAGTTTGGAACAAACCAAGCGATATG TTGCAAGAAAGAAGCCGATGGGCGCCTTACTTTAAAGTTTGGAACAAACCAAGCGATATG	120 120

Ref	AACGCGTTAATTTTTTGGGATGATAATGAACTGCAACTTTTAAAACCATCACTTGTCCTT	180
N5	AACGCGTTAATTTTTTGGGATGATAATGAACTGCAACTTTTAAAACCATCACTTGTCCTT	180
N6	AACGCGTTAATTTTTTGGGATGATAATGAACTGCAACTTTTAAAACCATCACTTGTCCTT	180
N7	AACGCGTTAATTTTTTGGGATGATAATGAACTGCAACTTTTAAAACCATCACTTGTCCTT	180 180
33 31	AACGCGTTAATTTTTTGGGATGCGAATGAACTGCAACTTTTAAAACCATCACTTGTCCTT AACGCGTTAATTTTTTGGGATGCGAATGAACTGCAACTTTTAAAACCATCACTTGTCCTT	180
32	AACGCGTTAATTTTTTGGGATGCGAATGAACTGCAACTTTTAAAACCATCACTTGTCCTT	180

Ref	${\tt GAAAGAATAGGAAAAAAGGAAGCCAAAGAATGCATGAAAGAATTATTAAATCAATC$	240
N5	GAAAGAATAGGAAAAAAGGAAGCCAAAGAGATGCATGAAAGAATTATTAAATCAATC	240
N6 N7	GAAAGAATAGGAAAAAAGGAAGCCAAAGAGATGCATGAAAGAATTATTAAATCAATC	240 240
33	GAAAGAATAGGAAAAAAGGAAGCCAAAGAGATGCATGAAAGAATTATTAAATCAATC	240
31	GAAAGAATAGGAAAAAAGGAAGCCAAAGAGATGCATGAAAGAATTATTAAATCAATC	240
32	GAAAGAATAGGAAAAAAGGAAGCCAAAGAGATGCATGAAAGAATTATTAAATCAATC	240
Ref	CAAATTGGTGGAGAATTTTCACGTGTAGCGACGTCCTTCGAGTTTGATAATTTTGCCTAT	300
N5 N6	CAAATTGGTGGAGAATTTTCACGTGTAGCGACGTCCTTCGAGATTGATAATTTTGCCTAT CAAATTGGTGGAGAATTTTCACGTGTAGCGACGTCCTTCGAGATTGATAATTTTGCCTAT	300
N7	CAAATTGGTGGAGAATTTTCACGTGTAGCGACGTCCTTCGAGATTGATAATTTTGCCTAT	300
83	CAAATTGGTGGAGAATTTTCACGTGTAGCGACGTCCTTCGAGTTTGATAATTTTGCCTAT	300
S1	CAAATTGGTGGAGAATTTTCACGTGTAGCGACGTCCTTCGAGTTTGATAATTTTGCCTAT	300
82	CAAATTGGTGGAGAATTTTCACGTGTAGCGACGTCCTTCGAGTTTGATAATTTTGCCTAT	300
Ref	ATTGCAAGCATTATATTGAGTTACTCCTTTGATTTGGAAATGCAAGATAGTAGTGTAAAT	360
N5	ATTGCAAGCATTATATTGAGTTACTCCTTTGATTTGGAAATGCAAGATAGTAGTATAAAT	360
N6	ATTGCAAGCATTATATTGAGTTACTCCTTTGATTTGGAAATGCAAGATAGTAGTGTAAAT	360
N7	ATTGCAAGCATTATATTGAGTTACTCCTTTGATTTGGAAATGCAAGATAGTAGTGTAAAT	360
93 91	ATTGCAAGCATTATATTGAGTTACTCCTTTGATTTGGAAATGCAAGATAGTAGTGTAAAT ATTGCAAGCATTATATTGAGTTACTCCTTTGATTTGGAAATGCAAGATAGTAGTGTAAAT	360 360
32	ATTGCAAGCATTATATTGAGTTACTCCTTTGATTTGGAAATGCAAGATAGTAGTAAAT	360

Ref	GAAAATGAAGAAGAAACCAGTGAAGAAGAACTTGAAAATGAGCGCTACTTGAAATCG	420
N5	GAAAATGAAGAAGAAACCAGTGAAGAAGAACTTGAAAATGAGCGCTACTTGAAATCG	420
N6 N7	GAAAATGAAGAAGAAACCAGTGAAGAAGAACTTGAAAATGAGCGCTACTTGAAATCG	420 420
83	GAAAATGAAGAAGAAGAACCAGTGAAGAAGAACTTGAAAATGAGCGCTACTTGAAATCG GAAAATGAAGAAGAAGAACCAGTGAAGAAGAACTTGAAAATGAGCGCTACTTGAAATCG	420
81	GAAAATGAAGAAGAAACCAGTGAAGAAGAACTTGAAAATGAGCGCTACTTGAAATCG	420
82	GARARTGAAGAAGAAGAACCAGTGAAGAAGAACTTGAAAATGAGCGCTACTTGAAATCG	420
Ref	ATGATTCCACTTGCTGATATGTTGAATGCAGATACCAGTAAATGCAACGCTAATTTAACT	480
N5	ATGATTCCACTTGCTGATATGTTGAATGCAGATACCAGTAAATGCAACGCTAATTTAACT	480
N6	ATGATTCCACTTGCTGATATGTTGAATGCAGATACCAGTAAATGCAACGCTAATTTAACT	480
N7	ATGATTCCACTTGCTGATATGTTGAATGCAGATACCAGTAAATGCAACGCTAATTTAACT	480
83 81	ATGATTCCACTTGCTGATATATTGAATGCAGATACCAGTAAATGCAACGCTAATTTAACT ATGATTCCACTTGCTGATATATTGAATGCAGATACCAGTAAATGCAACGCTAATTTAACT	480 480
82	ATGATTCCACTTGCTGATATATTGAATGCAGATACCAGTAAATGCAACGCTAATTTAACT	480
Ref	${\tt TACGACTCTAACTGTTTAAAGATGGTTGCTTTGAGGGATATTGAAAAGAATGAACAAGTG}$	540
N5 N6	TACGACTCTAACTGTTTAAAGATGGTTGCTTTGAGGGATATTGAAAAGAATGAACAAGTG TACGACTCTAACTGTTTAAAGATGGTTGCTTTGAGGGATATTGAAAAGAATGAACAAGTG	540 540
N7	TACGACTCTAACTGTTTAAAGATGGTTGCTTTGAGGGATATTGAAAAGAATGAACAAGTG	540
s3	TACGACTCTAACTGTTTAAAGATGGTTGCTTTGAGGGACATTGAAAAGAATGAACAAGTG	540
S1	TACGACTCTAACTGTTTAAAGATGGTTGCTTTGAGGGGACATTGAAAAGAATGAACAAGTG	540
82	TACGACTCTAACTGTTTAAAGATGGTTGCTTTGAGGGACATTGAAAAGAATGAACAAGTG	540
Ref	TACAACATATACGGAGAACATCCAAATTCGGAACTACTAAGAAGATATGGGTATGTTGAA	600
N5	TACAACATATACGGAGAACATCCAAATTCGGAACTACTAAGAAGATATGGGTATGTTGAA	600
N6	TACAACATATACGGAGAACATCCAAATTCGGAACTACTAAGAAGATATGGGTATGTTGAA	600
N7	TACAACATATACGGAGAACATCCAAATTCGGAACTACTAAGAAGATATGGGTATGTTGAA	600
83 81	TACAACATATACGGAGAACATCCAAATTCGGAACTACTAAGAAGATATGGGTATGTTGAA TACAACATATACGGAGAACATCCAAATTCGGAACTACTAAGAAGATATGGGTATGTTGAA	600 600
32	TACAACATATACGGAAACATCCAAATTCGGAACTACTAAGAAGATATGGGTATGTTGAA	600
Ref	TGGGACGGTTCGAAGTATGATTTTGGAGAAGTGTTACTTGAAAATATTGTCGAGGCGTTA	660 660
N5 N6	TGGGACGGTTCGAAGTATGATTTTGGAGAAGTGTTACTTGAAAATATTGTCGAGGCGTGA TGGGACGGTTCGAAGTATGATTTTGGAGAAGTGTTACTTGAAAATATTGTCGAGGCGTGA	660 660
N7	TGGGACGGTTCGAAGTATGATTTTGGAGAAGTGTTACTTGAAAATATTGTCGAGGCGTGA	660
93	TGGGACGGTTCGAAGTATGATTTTGGAGAAGTGTTACTTGAAAATATTGTCGAGGCGTTA	660
S1	TGGGACGGTTCGAAGTATGATTTTGGAGAAGTGTTACTTGAAAATATTGTCGAGGCGTTA	660
82	TGGGACGGTTCGAAGTATGATTTTGGAGAAGTGTTACTTGAAAATATTGTCGAGGCGTTA	660
Ref	333G3G3C400000G3G3CG33003C0G330000000CC3C3CC0C0000000C300000000	720
Rei N5	AAAGAGACTTTTGAGACGAATACTGAATTTTTTGGACAGGTGTATTGATATCTTACGCAAT AAAGAGACTTTTGAGACGAATACTGAATTTTTTGGACAGGTGTATTGATATCTTACGCAAT	720
N6	AAAGAGACTTTTGAGACGAATACTGAATTTTTGGACAGGTGTATTGATATCTTACGCAAT	720
N7	${\tt AAAGAGACTTTTGAGACGAATACTGAATTTTTGGACAGGTGTATTGATATCTTACGCAAT}$	720
83 81	AAAGAGACTTTTGAGACGAATACTGAATTTTTGGACAGGTGTATTGATATCTTACGCAAT AAAGAGACTTTTGAGACGAATACTGACTTTTTTGGACAGGTGTATTGATATCTTACGCAAT	720 720
S1 S2	AAAGAGACTTTTGAGACGAATACTGAGTTTTTTGGACAGGTGTATTGATATCTTACGCAAT AAAGAGACTTTTGAGACGAATACTGAGTTTTTTGGACAGGTGTATTGATATCTTACGCAAT	720

Ref N5 N6 N7 S3 S1 S2 TGCCAAATTCCAGGTTTATGCAAACTGGACATAAAAGCAATGGAAAGGCAAGTGGAGAGA TGCCAAATTCCAGGTTTATGCAAACTGGACATAAAGGCAATGGAAAGGCAAGTGGAGAGA TGCCAAATTCCAGGTTTATGCAAACTGGACATAAGGCAATGGAAAGCCAATGGAAGG TGCCAAATTCCAGGTTTATGCAAACTGGACATAAGGCCAATGGAAGGCAATGGAGAG TGCCAAATTCCAGGTTTATGCAAACTGGACATAAGGCAATGGAAGGCAATGGAGAG TGCCAAATTCCAGGTTTATGCAAACTGGACATAAAGCCAATGGAAGGCAATGGAGAG TGCCAAATTCCAGGTTTATGCAAACTGGACATAAAGCAATGGAAAGCCAATGGAGAG TGCCAAATTCCAGGTTTATGCAAACTGGACATAAAAGCAATGGAAAGGCAAGTGGAGAG Supplementary Fig. 3. Multiple sequence alignment

AACGCCARTATTCAAGAATTCTTAGAAGGTGAAGAATTAGTACTAGATTCATATGATTGA AACGCCARTATTCAAGAATTCTTAGAAGGGAAGAAATAGTACTAGATTCATATGATTGA AACGCCAATATTCAAGAATTCTTAGAAGGGTGAAGAAATAGTACTAGATTCATATGATTG AACGCCAATATTCAAGAATTCTTAGAAGGGTGAAGAAATAGTACTAGATTCATATGATTGA AACGCCAATATTCAAGAATTCTTAGAAGGGTAAGGAAATAGTACTAGATTCATTATGATTGA AACGCCAATATTCAAGAATTCTTAGAAGGGTGAAGAAATAGTACTAGATTCATTATGATTGT

AACGCCAATATTCAAGAATTCTTAGAAGGTGAAGAATAGTACTAGATTCATATGATTGT

TATAATAATGGTGAATTGTTGCCTCAACTAATACTTTTGGTCCAAATCTTGACAATTCTT

of RKM4 region of S. fimicola strains with respect to S. cerevisiae in order to observe single nucleotide polymorphism (SNP).

Note: Symbol (*) is showing fully conserved sites, space and highlighted regions showing SNPs.

N6	LNETGSWEGLIICILYEMEVLQERSRWAPYFKVWNKPSDM	40
N7	LNETGSWEGLIICILYEMEVLQERSRWAPYFKVWNKPSDM	40
N5	LNETGSWEGLIICILYGMEVLQERSRWAPYFKVWNKPSDM	40
S2	LNETGSWEGLINCILYGMEVLQERSRWAPYFKVWNKPSDM	40
83	LNETGSWEGLINCILYGMEVLQERSRWAPYFKVWNKPSDM	40
Ref	LNETGSWEGLIICILYEMEVLQERSRWAPYFKVWNKPSDM	40
S1		40

N6	NALIFWDDNELQLLKPSLVLERIGKKEAKEMHERIIKSIKQIGGEFSRVATSFETDNFAY	100
N7	NALIFWDDNELQLLKPSLVLERIGKKEAKEMHERIIKSIKQIGGEFSRVATSFEIDNFAY	100
N5	NALIFWDDNELQLLKPSLVLERIGKKEAKEMHERIIKSIKQIGGEFSRVATSFEIDNFAY	100
S2	NALIFWDANELQLLKPSLVLERIGKKEAKEMHERIIKSIKQIGGEFSRVATSFEFDNFAY	100
83	NALIFWDANELQLLKPSLVLERIGKKEAKEMHERIIKSIKQIGGEFSRVATSFEFDNFAY	100
Ref	NALIFWDDNELQLLKPSLVLERIGKKEAKEMHERIIKSIKQIGGEFSRVATSFEFDNFAY	100
S1	NALIFWDANELQLLKPSLVLERIGKKEAKEMHERIIKSIKQIGGEFSRVATSFEFDNFAY	100
	****** ************************	
N6	IASIILSYSFDLEMODSSVNENEEEETSEEELENERYLKSMIPLADMLNADTSKCNANLT	160
N7	IASIILSYSFDLEMODSSVNENEEEETSEEELENERYLKSMIPLADMLNADTSKCNANLT	160
N5	IASIILSYSFDLEMODSSVNENEEEETSEEELENERYLKSMIPLADMLNADTSKCNANLT	160
S2	IASIILSYSFDLEMODSSVNENEEEETSEEELENERYLKSMIPLADILNADTSKCNANLT	160
83	IASIILSYSFDLEMQDSSVNENEEEETSEEELENERYLKSMIFLADILNADTSKCNANLT	160
Ref	IASIILSYSFDLEMODSSVNENEEEETSEEELENERYLKSMIPLADMLNADTSKCNANLT	160
S1	IASIILSYSFDLEMQDSSVNENEEEETSEEELENERYLKSMIPLADILNADTSKCNANLT	160

N6	YDSNCLKMVALRDIEKNEOVYNIYGEHPNSELLRRYGYVEWDGSKYDFGEVLLENIVEA*	219
N7	YDSNCLKMVALRDIEKNEOVYNIYGEHPNSELLRRYGYVEWDGSKYDFGEVLLENIVEA*	219
N5	YDSNCLKMVALRDIEKNEQVYNIYGEHPNSELLRRYGYVEWDGSKYDFGEVLLENIVEA*	219
32	YDSNCLKMVALRDIEKNEOVYNIYGEHPNSELLRRYGYVEWDGSKYDFGEVLLENIVEAL	220
83	YDSNCLKMVALRDIEKNEOVYNIYGEHPNSELLRRYGYVEWDGSKYDFGEVLLENIVEAL	220
Ref	YDSNCLKMVALRDIEKNEOVYNIYGEHPNSELLRRYGYVEWDGSKYDFGEVLLENIVEAL	220
S1	YDSNCLKMVALRDIEKNEOVYNIYGEHPNSELLRRYGYVEWDGSKYDFGEVLLENIVEAL	220

N6	KETFETNTEFLDRCIDILRNNANIQEFLEGEEIVLDSYDCYNNGELLPQLILLVQILTIL	279
N7	KETFETNTEFLDRCIDILRNNANIQEFLEGEEIVLDSYDCYNNGELLPQLILLVQILTIL	279
N5	KETFETNTEFLDRCIDILRNNANIQEFLEGEEIVLDSYDCYNNGELLPQLILLVQILTIL	279
32	KETFETNTEFLDRCIDILRNNANIQEFLEGEEIVLDSYDCYNNGELLPQLILLVQILTIL	280
83	KETFETNTEFLDRCIDILRNNANIQEFLEGEEIVLDSYDCFNNGELLPQLILLVQILTIL	280
Ref	KETFETNTEFLDRCIDILRNNANIQEFLEGEEIVLDSYDCYNNGELLPQLILLVQILTIL	280
31	KETFETNTEFLDRCIDILRNNANIQEFLEGEEIVLDSYDCYNNGELLPQLILLVQILTIL	280

N6	CQIPGLCKLDIKAMERQVER	299
N7	CQIPGLCKLDIKAMERQVER	299
N5	COIPGLCKLDIKAMEROVER	299
S2	COIPGLCKLDIKAMEROVER	300
83	CQIPGLCKLDIKAMERQVER	300
Ref	CQIPGLCKLDIKAMERQVERIVKKCLQLIEGARATTNCSATWKRCIMKRLADYPIKKCVS	340
S1	COIPGLCKLDIKAMERQVER	300

Supplementary Fig. 4. Multiple sequence alignment of amino acid sequence of RKM4 protein of different strains of *S. fimicola* with respect to the reference strain *S.* cerevisiae amino acid sequence to spot genetic diversity. Symbol (*) showing conserved sites, space and highlighted regions showing polymorphic sites.