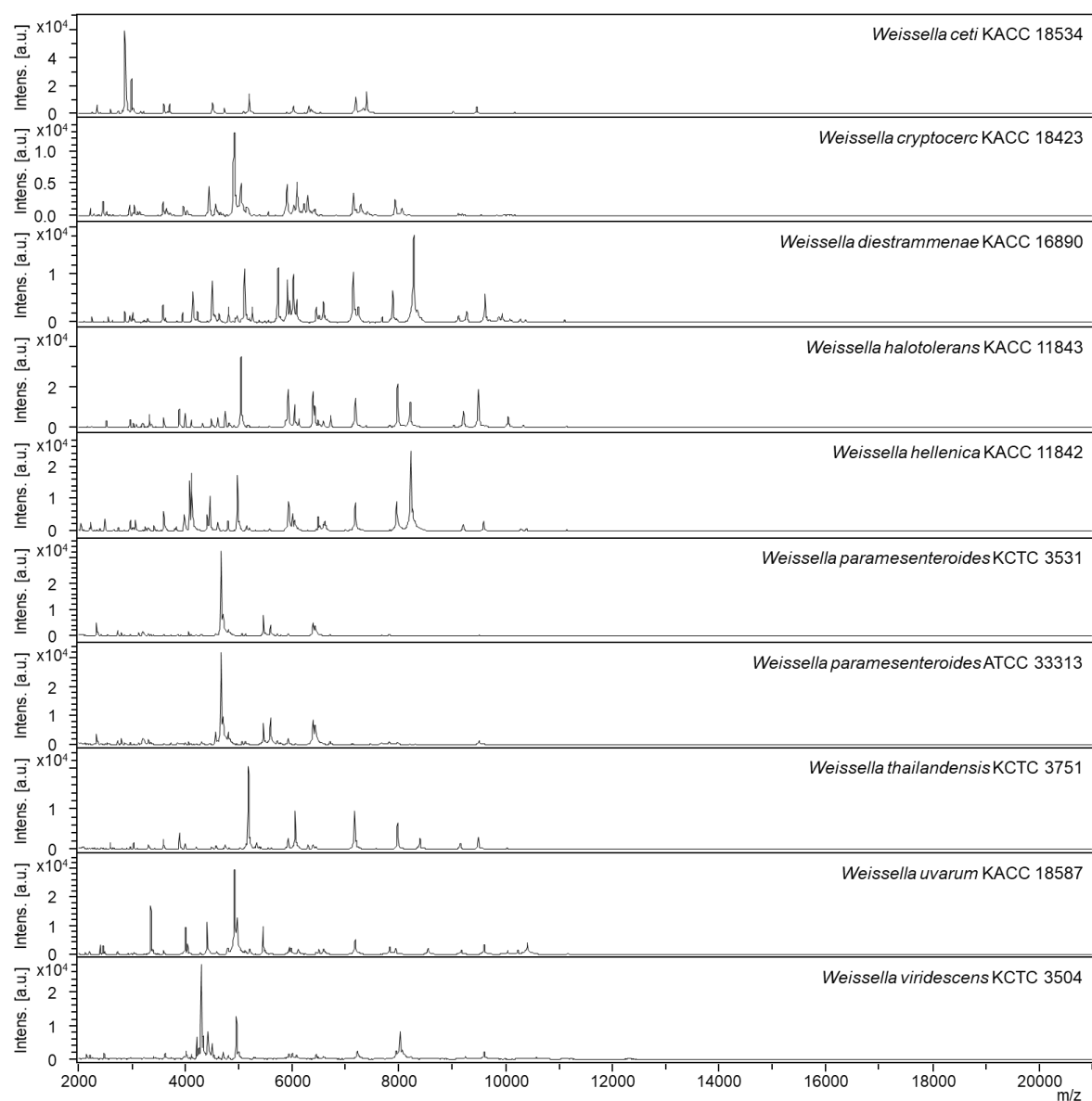
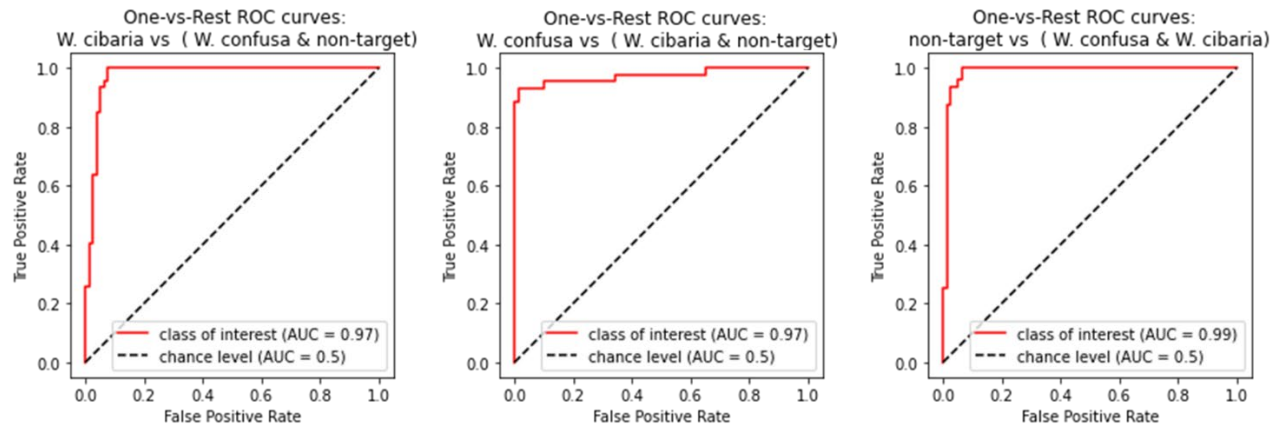


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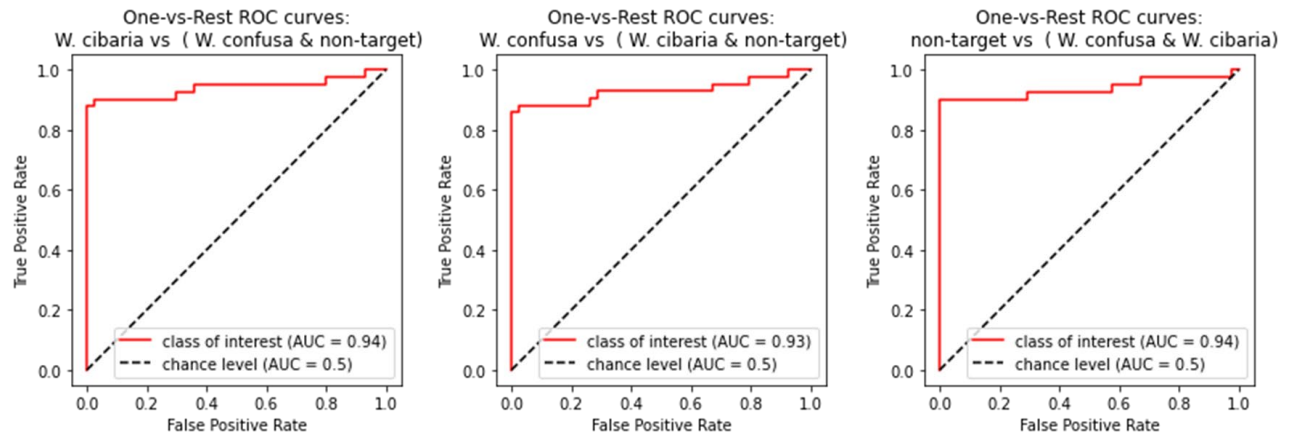


Supplementary Figure S1. Mass spectra of reference strains of non-target *Weissella* species; m/z , mass-to-charge ratio; a.u., arbitrary units.



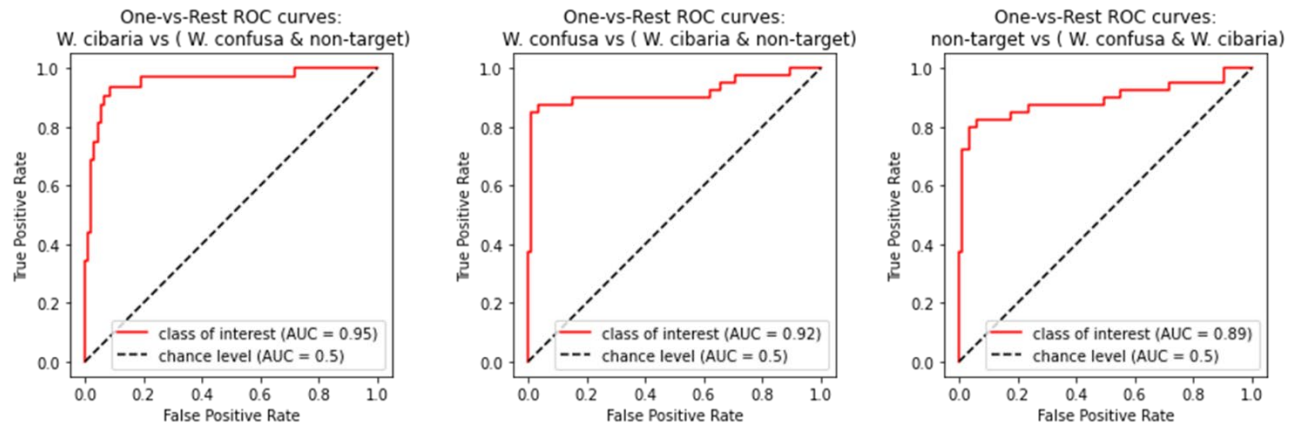
Supplementary Figure S2.

The developed ANN model was utilized to analyze the ROC curves and AUC, showing the following: (Left) The classification performance between *W. cibaria* and the other two classes, (middle) The classification performance between *W. confusa* and the other two classes, (Right) The classification performance between non-target samples and the other two classes.



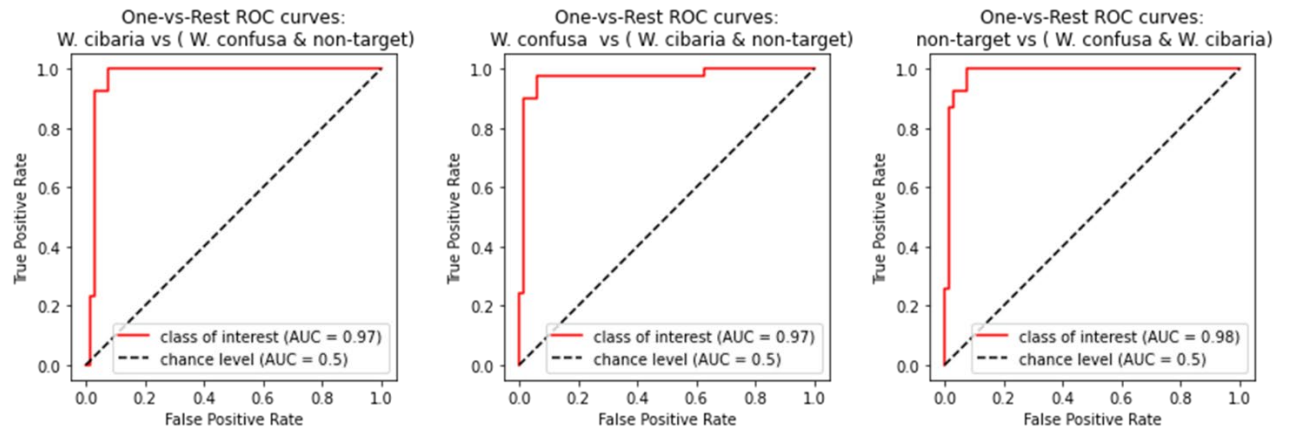
Supplementary Figure S3.

The developed PCA-KNN model was utilized to analyze the ROC curves and AU, showing the following: (Left) The classification performance between *W. cibaria* and the other two classes, (middle) The classification performance between *W. confusa* and the other two classes, (Right) The classification performance between non-target samples and the other two classes.



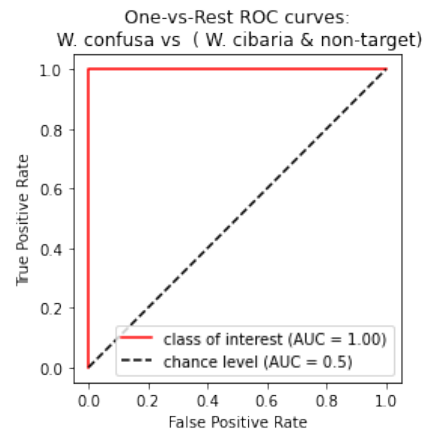
Supplementary Figure S4.

The developed SVM-sigmoid model was utilized to analyze the ROC curves and AUC, showing the following: (Left) The classification performance between *W. cibaria* and the other two classes, (middle) The classification performance between *W. confusa* and the other two classes, (Right) The classification performance between non-target samples and the other two classes.



Supplementary Figure S5.

The developed Random Forest model was utilized to analyze the ROC curves and AUC, showing the following: (Left) The classification performance between *W. cibaria* and the other two classes, (middle) The classification performance between *W. confusa* and the other two classes, (Right) The classification performance between non-target samples and the other two classes.



Supplementary Figure S6.

The developed Sigmoid-RBF model was employed for the analysis of ROC curves and AUC, achieving a classification accuracy of 1.0 across all three categories.

Supplementary Table S1. Identification of *W. cibaria*, *W. confusa*, and non-target strains by MALDI-TOF MS with BioTyper database and specific real-time PCR

Sample ID	Specific real-time PCR	MALDI-TOF MS with bioTyper database			
		Organism (best match)	Score Value	Organism (second-best match)	Score Value
cibaria_01	<i>Weissella cibaria</i>	<i>Weissella cibaria</i>	2.30	<i>Weissella cibaria</i>	2.11
cibaria_02	<i>Weissella cibaria</i>	<i>Weissella cibaria</i>	2.40	<i>Weissella cibaria</i>	2.18
cibaria_03	<i>Weissella cibaria</i>	<i>Weissella cibaria</i>	2.43	<i>Weissella cibaria</i>	2.22
cibaria_04	<i>Weissella cibaria</i>	<i>Weissella cibaria</i>	2.35	<i>Weissella cibaria</i>	2.11
cibaria_05	<i>Weissella cibaria</i>	<i>Weissella cibaria</i>	2.36	<i>Weissella cibaria</i>	2.15
cibaria_06	<i>Weissella cibaria</i>	<i>Weissella cibaria</i>	2.38	<i>Weissella cibaria</i>	2.21
cibaria_07	<i>Weissella cibaria</i>	<i>Weissella cibaria</i>	2.32	<i>Weissella cibaria</i>	2.27
cibaria_08	<i>Weissella cibaria</i>	<i>Weissella cibaria</i>	2.39	<i>Weissella cibaria</i>	2.25
cibaria_09	<i>Weissella cibaria</i>	<i>Weissella cibaria</i>	2.20	<i>Weissella cibaria</i>	2.18
cibaria_10	<i>Weissella cibaria</i>	<i>Weissella cibaria</i>	2.33	<i>Weissella cibaria</i>	2.13
cibaria_11	<i>Weissella cibaria</i>	<i>Weissella cibaria</i>	2.11	<i>Weissella cibaria</i>	2.01
cibaria_12	<i>Weissella cibaria</i>	<i>Weissella cibaria</i>	2.16	<i>Weissella cibaria</i>	2.13
cibaria_13	<i>Weissella cibaria</i>	<i>Weissella cibaria</i>	2.42	<i>Weissella cibaria</i>	2.11
cibaria_14	<i>Weissella cibaria</i>	<i>Weissella cibaria</i>	2.17	<i>Weissella cibaria</i>	2.12
cibaria_15	<i>Weissella cibaria</i>	<i>Weissella cibaria</i>	2.19	<i>Weissella cibaria</i>	2.15
cibaria_16	<i>Weissella cibaria</i>	<i>Weissella cibaria</i>	2.12	<i>Weissella cibaria</i>	2.07
cibaria_17	<i>Weissella cibaria</i>	<i>Weissella cibaria</i>	2.05	<i>Weissella cibaria</i>	2.05
cibaria_18	<i>Weissella cibaria</i>	<i>Weissella cibaria</i>	2.24	<i>Weissella cibaria</i>	2.08
cibaria_19	<i>Weissella cibaria</i>	<i>Weissella cibaria</i>	2.23	<i>Weissella cibaria</i>	2.23
cibaria_20	<i>Weissella cibaria</i>	<i>Weissella cibaria</i>	2.21	<i>Weissella cibaria</i>	2.14
cibaria_21	<i>Weissella cibaria</i>	<i>Weissella cibaria</i>	2.33	<i>Weissella cibaria</i>	2.31
cibaria_22	<i>Weissella cibaria</i>	<i>Weissella cibaria</i>	2.37	<i>Weissella cibaria</i>	2.35
cibaria_23	<i>Weissella cibaria</i>	<i>Weissella cibaria</i>	2.38	<i>Weissella cibaria</i>	2.35
cibaria_24	<i>Weissella cibaria</i>	<i>Weissella cibaria</i>	2.36	<i>Weissella cibaria</i>	2.25
cibaria_25	<i>Weissella cibaria</i>	<i>Weissella cibaria</i>	2.31	<i>Weissella cibaria</i>	2.22
cibaria_26	<i>Weissella cibaria</i>	<i>Weissella cibaria</i>	2.31	<i>Weissella cibaria</i>	2.24
cibaria_27	<i>Weissella cibaria</i>	<i>Weissella cibaria</i>	2.03	<i>Weissella cibaria</i>	2.01
cibaria_28	<i>Weissella cibaria</i>	<i>Weissella cibaria</i>	2.30	<i>Weissella cibaria</i>	2.29
cibaria_29	<i>Weissella cibaria</i>	<i>Weissella cibaria</i>	2.12	<i>Weissella cibaria</i>	2.12

cibaria_30	<i>Weissella cibaria</i>	<i>Weissella cibaria</i>	2.32	<i>Weissella cibaria</i>	2.09
cibaria_31	<i>Weissella cibaria</i>	<i>Weissella cibaria</i>	2.26	<i>Weissella cibaria</i>	2.19
cibaria_32	<i>Weissella cibaria</i>	<i>Weissella cibaria</i>	2.11	<i>Weissella cibaria</i>	2.09
cibaria_33	<i>Weissella cibaria</i>	<i>Weissella cibaria</i>	2.09	<i>Weissella cibaria</i>	2.07
cibaria_34	<i>Weissella cibaria</i>	<i>Weissella cibaria</i>	2.27	<i>Weissella cibaria</i>	2.26
cibaria_35	<i>Weissella cibaria</i>	<i>Weissella cibaria</i>	2.15	<i>Weissella cibaria</i>	2.03
cibaria_36	<i>Weissella cibaria</i>	<i>Weissella cibaria</i>	2.34	<i>Weissella cibaria</i>	2.24
cibaria_37	<i>Weissella cibaria</i>	<i>Weissella cibaria</i>	2.23	<i>Weissella cibaria</i>	2.20
cibaria_38	<i>Weissella cibaria</i>	<i>Weissella cibaria</i>	2.32	<i>Weissella cibaria</i>	2.22
cibaria_39	<i>Weissella cibaria</i>	<i>Weissella cibaria</i>	2.11	<i>Weissella cibaria</i>	2.00
cibaria_40	<i>Weissella cibaria</i>	<i>Weissella cibaria</i>	2.30	<i>Weissella cibaria</i>	2.13
cibaria_41	<i>Weissella cibaria</i>	<i>Weissella cibaria</i>	2.22	<i>Weissella cibaria</i>	2.10
cibaria_42	<i>Weissella cibaria</i>	<i>Weissella cibaria</i>	2.16	<i>Weissella cibaria</i>	1.99
cibaria_43	<i>Weissella cibaria</i>	<i>Weissella cibaria</i>	2.06	<i>Weissella cibaria</i>	2.01
W. cibaria KCTC 3746	<i>Weissella cibaria</i>	<i>Weissella cibaria</i>	2.16	<i>Weissella cibaria</i>	2.08
confusa_01	<i>Weissella confusa</i>	<i>Weissella confusa</i>	2.09	<i>Weissella cibaria</i>	2.08
confusa_02	<i>Weissella confusa</i>	<i>Weissella confusa</i>	2.03	<i>Weissella cibaria</i>	2.03
confusa_03	<i>Weissella confusa</i>	<i>Weissella cibaria</i>	1.91	<i>Weissella cibaria</i>	1.90
confusa_04	<i>Weissella confusa</i>	<i>Weissella cibaria</i>	1.99	<i>Weissella confusa</i>	1.85
confusa_05	<i>Weissella confusa</i>	<i>Weissella confusa</i>	2.08	<i>Weissella cibaria</i>	2.07
confusa_06	<i>Weissella confusa</i>	<i>Weissella cibaria</i>	2.12	<i>Weissella cibaria</i>	2.06
confusa_07	<i>Weissella confusa</i>	<i>Weissella confusa</i>	1.99	<i>Weissella confusa</i>	1.89
confusa_08	<i>Weissella confusa</i>	<i>Weissella confusa</i>	1.95	<i>Weissella confusa</i>	1.94
confusa_09	<i>Weissella confusa</i>	<i>Weissella confusa</i>	1.97	<i>Weissella cibaria</i>	1.92
confusa_10	<i>Weissella confusa</i>	<i>Weissella cibaria</i>	1.90	<i>Weissella confusa</i>	1.88
confusa_11	<i>Weissella confusa</i>	<i>Weissella confusa</i>	2.10	<i>Weissella cibaria</i>	2.02
confusa_12	<i>Weissella confusa</i>	<i>Weissella cibaria</i>	2.05	<i>Weissella confusa</i>	1.96
confusa_13	<i>Weissella confusa</i>	<i>Weissella cibaria</i>	2.08	<i>Weissella confusa</i>	2.04
confusa_14	<i>Weissella confusa</i>	<i>Weissella cibaria</i>	1.96	<i>Weissella confusa</i>	1.88
confusa_15	<i>Weissella confusa</i>	<i>Weissella cibaria</i>	1.89	<i>Weissella confusa</i>	1.81
confusa_16	<i>Weissella confusa</i>	<i>Weissella cibaria</i>	1.95	<i>Weissella confusa</i>	1.94
confusa_17	<i>Weissella confusa</i>	<i>Weissella confusa</i>	2.01	<i>Weissella cibaria</i>	1.87
confusa_18	<i>Weissella confusa</i>	<i>Weissella confusa</i>	1.95	<i>Weissella cibaria</i>	1.91
confusa_19	<i>Weissella confusa</i>	<i>Weissella cibaria</i>	2.02	<i>Weissella confusa</i>	1.97
confusa_20	<i>Weissella confusa</i>	<i>Weissella confusa</i>	2.07	<i>Weissella confusa</i>	1.97

confusa_21	<i>Weissella confusa</i>	<i>Weissella cibaria</i>	2.13	<i>Weissella confusa</i>	2.03
confusa_22	<i>Weissella confusa</i>	<i>Weissella cibaria</i>	2.08	<i>Weissella cibaria</i>	2.03
confusa_23	<i>Weissella confusa</i>	<i>Weissella cibaria</i>	2.08	<i>Weissella confusa</i>	2.07
confusa_24	<i>Weissella confusa</i>	<i>Weissella cibaria</i>	2.08	<i>Weissella confusa</i>	2.01
confusa_25	<i>Weissella confusa</i>	<i>Weissella confusa</i>	2.02	<i>Weissella confusa</i>	2.00
confusa_26	<i>Weissella confusa</i>	<i>Weissella cibaria</i>	2.05	<i>Weissella confusa</i>	2.01
confusa_27	<i>Weissella confusa</i>	<i>Weissella cibaria</i>	2.10	<i>Weissella confusa</i>	2.05
confusa_28	<i>Weissella confusa</i>	<i>Weissella cibaria</i>	2.04	<i>Weissella confusa</i>	1.98
confusa_29	<i>Weissella confusa</i>	<i>Weissella confusa</i>	2.06	<i>Weissella cibaria</i>	2.02
confusa_30	<i>Weissella confusa</i>	<i>Weissella cibaria</i>	2.13	<i>Weissella confusa</i>	2.12
confusa_31	<i>Weissella confusa</i>	<i>Weissella cibaria</i>	1.74	<i>Weissella cibaria</i>	1.73
confusa_32	<i>Weissella confusa</i>	<i>Weissella cibaria</i>	2.09	<i>Weissella confusa</i>	1.94
confusa_33	<i>Weissella confusa</i>	<i>Weissella cibaria</i>	2.09	<i>Weissella cibaria</i>	2.04
confusa_34	<i>Weissella confusa</i>	<i>Weissella cibaria</i>	2.05	<i>Weissella cibaria</i>	2.02
confusa_35	<i>Weissella confusa</i>	<i>Weissella cibaria</i>	2.09	<i>Weissella cibaria</i>	1.96
confusa_36	<i>Weissella confusa</i>	<i>Weissella cibaria</i>	2.13	<i>Weissella confusa</i>	2.04
confusa_37	<i>Weissella confusa</i>	<i>Weissella cibaria</i>	2.12	<i>Weissella cibaria</i>	2.03
confusa_38	<i>Weissella confusa</i>	<i>Weissella cibaria</i>	1.86	<i>Weissella confusa</i>	1.79
confusa_39	<i>Weissella confusa</i>	<i>Weissella cibaria</i>	1.79	<i>Weissella cibaria</i>	1.74
confusa_40	<i>Weissella confusa</i>	<i>Weissella confusa</i>	2.08	<i>Weissella cibaria</i>	2.00
confusa_41	<i>Weissella confusa</i>	<i>Weissella cibaria</i>	1.74	No Organism Identification Possible	1.61
confusa_42	<i>Weissella confusa</i>	<i>Weissella confusa</i>	1.74	<i>Weissella cibaria</i>	1.71
confusa_43	<i>Weissella confusa</i>	<i>Weissella confusa</i>	1.78	<i>Weissella confusa</i>	1.72
confusa_44	<i>Weissella confusa</i>	<i>Weissella cibaria</i>	1.74	<i>Weissella confusa</i>	1.72
confusa_45	<i>Weissella confusa</i>	<i>Weissella cibaria</i>	1.92	<i>Weissella confusa</i>	1.91
<i>W. confusa</i> KCTC 3499	<i>Weissella confusa</i>	<i>Weissella cibaria</i>	1.96	<i>Weissella confusa</i>	1.80
nontarget_01	<i>Weissella ceti</i>	No Organism Identification Possible	1.48	No Organism Identification Possible	1.35
nontarget_02	<i>Weissella cryptocerc</i>	No Organism Identification Possible	1.26	No Organism Identification Possible	1.25
nontarget_03	<i>Weissella diestrammenae</i>	<i>Weissella diestrammenae</i>	2.13	No Organism Identification Possible	1.54
nontarget_04	<i>Weissella halotolerans</i>	<i>Weissella halotolerans</i>	2.22	<i>Weissella halotolerans</i>	1.78
nontarget_05	<i>Weissella hellenica</i>	<i>Weissella hellenica</i>	2.09	No Organism Identification Possible	1.65
nontarget_06	<i>Weissella hellenica</i>	<i>Weissella hellenica</i>	1.88	No Organism Identification Possible	1.61
nontarget_07	<i>Weissella hellenica</i>	<i>Weissella hellenica</i>	1.83	No Organism Identification Possible	1.62
nontarget_08	<i>Weissella hellenica</i>	<i>Weissella hellenica</i>	1.82	No Organism Identification Possible	1.60
nontarget_09	<i>Weissella hellenica</i>	<i>Weissella hellenica</i>	1.73	No Organism Identification Possible	1.38

nontarget_10	<i>Weissella koreensis</i>	<i>Weissella koreensis</i>	2.26	No Organism Identification Possible1.52
nontarget_11	<i>Weissella koreensis</i>	<i>Weissella koreensis</i>	2.01	No Organism Identification Possible1.36
nontarget_12	<i>Weissella koreensis</i>	<i>Weissella koreensis</i>	2.29	No Organism Identification Possible1.35
nontarget_13	<i>Weissella koreensis</i>	<i>Weissella koreensis</i>	2.32	No Organism Identification Possible1.29
nontarget_14	<i>Weissella koreensis</i>	<i>Weissella koreensis</i>	2.33	No Organism Identification Possible1.47
nontarget_15	<i>Weissella koreensis</i>	<i>Weissella koreensis</i>	2.43	No Organism Identification Possible1.47
nontarget_16	<i>Weissella koreensis</i>	<i>Weissella koreensis</i>	2.27	No Organism Identification Possible1.43
nontarget_17	<i>Weissella koreensis</i>	<i>Weissella koreensis</i>	2.33	No Organism Identification Possible1.30
nontarget_18	<i>Weissella koreensis</i>	<i>Weissella koreensis</i>	2.09	No Organism Identification Possible1.37
nontarget_19	<i>Weissella koreensis</i>	<i>Weissella koreensis</i>	2.30	No Organism Identification Possible1.37
nontarget_20	<i>Weissella koreensis</i>	<i>Weissella koreensis</i>	2.22	No Organism Identification Possible1.28
nontarget_21	<i>Weissella koreensis</i>	<i>Weissella koreensis</i>	2.30	No Organism Identification Possible1.33
nontarget_22	<i>Weissella koreensis</i>	<i>Weissella koreensis</i>	1.80	No Organism Identification Possible1.35
nontarget_23	<i>Weissella minor</i>	No Organism Identification Possible	1.58	No Organism Identification Possible1.31
nontarget_24	<i>Weissella paramesenteroides</i>	<i>Weissella paramesenteroides</i>	1.97	<i>Weissella paramesenteroides</i> 1.74
nontarget_25	<i>Weissella paramesenteroides</i>	<i>Weissella paramesenteroides</i>	2.14	<i>Weissella paramesenteroides</i> 1.87
nontarget_26	<i>Weissella paramesenteroides</i>	<i>Weissella paramesenteroides</i>	2.05	<i>Weissella paramesenteroides</i> 1.93
nontarget_27	<i>Weissella paramesenteroides</i>	<i>Weissella paramesenteroides</i>	1.94	<i>Weissella paramesenteroides</i> 1.94
nontarget_28	<i>Weissella paramesenteroides</i>	<i>Weissella paramesenteroides</i>	2.03	<i>Weissella paramesenteroides</i> 1.94
nontarget_29	<i>Weissella paramesenteroides</i>	<i>Weissella paramesenteroides</i>	1.85	<i>Weissella paramesenteroides</i> 1.81
nontarget_30	<i>Weissella paramesenteroides</i>	<i>Weissella paramesenteroides</i>	2.03	<i>Weissella paramesenteroides</i> 1.99
nontarget_31	<i>Weissella paramesenteroides</i>	<i>Weissella paramesenteroides</i>	1.96	<i>Weissella paramesenteroides</i> 1.90
nontarget_32	<i>Weissella soli</i>	No Organism Identification Possible	1.35	No Organism Identification Possible1.30
nontarget_33	<i>Weissella thailandensis</i>	<i>Weissella thailandensis</i>	1.90	<i>Weissella thailandensis</i> 1.77
nontarget_34	<i>Weissella uvarum</i>	<i>Weissella uvarum</i>	2.25	No Organism Identification Possible1.57
nontarget_35	<i>Weissella viridescens</i>	<i>Weissella viridescens</i>	2.33	<i>Weissella viridescens</i> 2.13
