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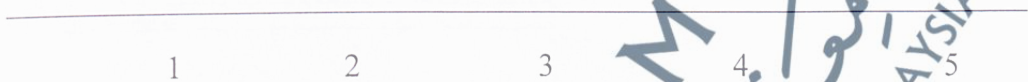
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APPENDIX A

Descriptive Test of Fermented Chili Mash

Please rate the odor intensity according to the scale below. The higher the number indicate the intense the odor. For example 1 represents the least odor while 5 indicate the most concentrated odor.

Odor Intensity:



STARTER A

FLAVOR	AU1	AU2	AU3	ALO1	ALO2	ALO3
Raw chilies						
Sour						
Sweetie						
Flowery						
Yeasty						
Fungi						
Stinky						
Fruity						
Flat						

STARTER B

FLAVOR	AU1	AU2	AU3	ALO1	ALO2	ALO3
Raw chilies						
Sour						
Sweetie						
Flowery						
Yeasty						
Fungi						
Stinky						
Fruity						
Flat						

APPENDIX B

Hedonic Form

Place an (X) in the box that describe how much u like or dislike each contribute

SAMPLE _____

How much do you like or dislike the look **ODOR** of this pepper mash?

9	Like extremely	
8	Like very much	
7	Like moderately	
6	Like slightly	
5	Neither like nor dislike	
4	Dislike slightly	
3	Dislike moderately	
2	Dislike very much	
1	Dislike extremely	

Any comments?

How much do you like or dislike the look **TASTE** of this pepper mash?

9	Like extremely	
8	Like very much	
7	Like moderately	
6	Like slightly	
5	Neither like nor dislike	
4	Dislike slightly	
3	Dislike moderately	
2	Dislike very much	
1	Dislike extremely	

Any comments?

How much do you like or dislike the look **SOFTNESS** of this pepper mash?

9	Like extremely	
8	Like very much	
7	Like moderately	
6	Like slightly	
5	Neither like nor dislike	
4	Dislike slightly	
3	Dislike moderately	
2	Dislike very much	
1	Dislike extremely	

Any comments?

How much do you like or dislike the look **COLOR** of this pepper mash?

9	Like extremely	
8	Like very much	
7	Like moderately	
6	Like slightly	
5	Neither like nor dislike	
4	Dislike slightly	
3	Dislike moderately	
2	Dislike very much	
1	Dislike extremely	

Any comments?

How much do you like or dislike this pepper mash?

9	Like extremely	
8	Like very much	
7	Like moderately	
6	Like slightly	
5	Neither like nor dislike	
4	Dislike slightly	
3	Dislike moderately	
2	Dislike very much	
1	Dislike extremely	

Any comments?

Is there anything specific that you really disliked about this chili mash?

Is there anything specific that you really liked about this chili mash?

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APPENDIX C

Forward and Reverse DNA Sequence for *Lb. plantarum* ALO1, *Lb. pentosus* ALO2
Lb. plantarum AU2,

Lb. plantarum ALO1

Sequence (Forward)

GGGGAAAAGGGGGGGGCTATAATGCAGTCGAACGAACTCTGGTATPGATTGGTG
CTTGCATCATGATTTACATTTGAGTGAGTGGCGAACTGGTGAGTAACAAGTGGGA
AACCTGCCCAGAAGCGGGGGATAACACCTGGAAACAGATGCTAATACCGCATAA
CAACTTGGACCGCATGGTCCGAGCTTGAAAGATGGCTTCGGCTATCACTTTTGA
TGGTCCCGCGGCGTATTAGCTAGATGGTGGGGTAACGGCTCACCATGGCAATGAT
ACGTAGCCGACCTGAGAGGGTAATCGGCCACATTGGGACTGAGACACGGCCCAA
ACTCCTACGGGAGGCAGCAGTAGGGAATCTTCCACAATGGACGAAAGTCTGATG
GAGCAACGCCGCGTGAGTGAAGAAGGGTTTCGGCTCGTAAAACCTCTGTTGTTAAA
GAAGAACATATCTGAGAGTAACTGTTTCAGGTATTGACCGTATTTAAACAGAAAGC
CACGGCTAACTACGTGCCAGCAGCCGCGGTAATACGTAGGTGGCAAGCGTTGTCC
GGATTTATTGGGCGTAAAGCGAGCGCAGGCGGTTTTTAAAGTCTGATGTCGAAAGC
CTTCGGCTCAACCGAAGAAGTGCATCGGAAACTGGGAAACTTGAGTGCAGAAGA
GGACAGTGGAACTCCATGTGTAGCGGTGAAATGGGTAGATATATGGAGAACAC
CAGTGGCGAAGGCGGCTGTCTGGTCTGTAACCTCAGCCTGAGGCTCGAAAGTATGG
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GCGGTGGAGCATGTGGTTTAATTCGAAGCTACGCGAAGAACCTTACCAGGTCTTG
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TGGTGCATGGTTGTCGTCAGCTCGTGTCTGAGATGTTGGGTTAAGTCCCGCAAC
GAGCGCAACCCTTATTATCAGTTGCCAGCATTAAAGTTCCGCACTCTGGTGAGACT
GCCGGTGACAAACCGGAGGAAGCTGGGGATGACGTCAAATCATCATGCCCTTAT
GACCTGGGCTACACACGTGCTACAATGGATTGGTCAACCAAGTTGCGAACTCCGG
AGAGTAAGCTAATCTCT

Sequence (Reverse)

NGGGGCCCGATCTAGCGATTCCGACTTCATGTAGGCGAGTTGCAGCCTACAATC
CGAACTGAGAATGGCTTAAAGAGATTAGCTTACTCTCGCGAGTTCGCAACTCGTT
GTACCATCCATTGTAGCACGTGTCTAGCCGAGGTCATAAGGGGCATGATGATTTG
ACGTCATCCCCACCTTCCTCCGGTTGTGCAACCGGCAGTCTCACCAGAGTGCCCAAC
TTAATGCTGGCAACTGATAATAAGGGTTGCGCTCGTTGCGGGACTTAACCCAACA
TCTCACGACACGAGCTGACGACAACCATGCACCACCTGTATCCATGTCCCCGAAG
GGAACGTCTAATCTCTTAGATTTGCATAGTATGTCAAGACCTGGTAAGGTTCTTCG
CGTAGCTTCGAATTAACCACATGCTCCACCGCTTGTGCGGGCCCCCGTCAATTCC
TTTGAGTTTCACCTTGCGGCCGTACTCCCCAGGCGGAATGCTTAATGCGTTAGCT
GCAGCACTGAAGGGCGGAAACCCTCCAACACTTAGCATTTCATCGTTTACGGTATG
GACTACCAGGGTATCTAATCCTGTTTGCTACCCATACTTTCGAGCCTCAGCGTCAG
TTACAGACCAGACAGCCGCTTCGCCACTGGTGTCTTCCATATATCTACGCATTT
CACGCTACACATGGAGTTCCTACTGTCTTCTGCACTCAAGTTTCCAGTTTCC
GATGCACTTCTTCGGTTGAGCCGAAGGCTTTCACATCAGACTTAAAAAACCGCCT
GCGCTCGTTTACGCCCAATAAATCCGGACAACGCTTGCCACCTACGTATTACCG
CGGCTGCTGGCACGTAGTTAGCCGTGGCTTTCTGGTTAAATACCGTCAATACCTGA
ACAGTTACTCTCAGATATGTTCTTCTTTAACAACAGAGTTTTACGAGCCGAAACC
TTCTTCACTCACGCGGCGTTGCTCCATCAGACTTTCGTCCATTGTGGAAGATTCCC
TACTGCTGCCTCCCGTAGGAGTTTGGGCCGTGTCTCAGTCCCAATGTGGCCGATTA
CCCTCTCAGGTCGGCTACGTATCATTGCCATGGTGAGCCGTTACCCACCATCTAG
CTAATACGCCGCGGGACCATCCAAAAGTGATAGCCGAAGCCATCTTTC AAGCTCG
GACCATGCGGTCCAAGTTGTTATGCGGAATAACACCCG

Lb. pentosus ALO2

Sequence (Forward)

NGGGAAAAGGGGGGGCTATAATGCAAGTCGAACGAACTCTGGTATTGATTGGTG
 CTTGCATCATGATTTACATTTGAGTGAGTGGCGAACTGGTGAGTAACACGTGGGA
 AACCTGCCCAGAAGCGGGGGATAACACCTGGAAACAGATGCTAATACCGCATAA
 CAACTTGGACCGCATGGTCCGAGCTTGAAAGATGGCTTCGGCTATCACTTTTGA
 TGGTCCCGCGGCGTATTAGCTAGATGGTGGGGTAACGGCTCACCATGGCAATGAT
 ACGTAGCCGACCTGAGAGGGTAATCGGCCACATTGGGACTGAGACACCGCCCAA
 ACTCCTACGGGAGGCAGCAGTAGGGAATCTTCCACAATGGACGAAAAGTCTGATG
 GAGCAACGCCGCGTGAGTGAAGAAGGGTTTCGGCTCGTAAAACTCTGTTGTAAA
 GAAGAACATATCTGAGAGTAACTGTTTCCAGGTATTGACGGTATTTAACAGAAAGC
 CACGGCTAACTACGTGCCAGCAGCCGCGGTAATACGTAGGTGGCAAGCGTTGTCC
 GGATTTATTGGGCGTAAAGCGAGCGCAGGCGGTTTTTTAAAGTCTGATGTGAAAGC
 CTTCCGGCTCAACCGAAGAAGTGCATCGGAAACTGGGAAACTTGAGTGCAGAAGA
 GGACAGTGGAACTCCATGTGTAGCGGTGAAATGCGTAGATATATGGAAGAACAC
 CAGTGGCGAAGGCGGCTGTCTGGTCTGTAAGTACGCTGAGGCTCGAAAGTATGG
 GTAGCAAACAGGATTAGATACCCTGGTAGTCCATACCGTAAACGATGAAATGCTAA
 GTGTTGGAGGGTTTCCGCCCTTCAGTGCTGCAGCTAACGCATTAAGCATCCCGCT
 GGGGAGTACGGCCGCAAGGCTGAAACTCAAAGGAAATTGACGGGGGGCCGCACAA
 GCGGTGGAGCATGTGGTTTAATTCGAAGCTACCGGAAGAACCCTACAGGTCTTG
 ACATACTATGCAAATCTAAGAGATTAGACGTTCCCTTCGGSGACATGGATACAGG
 TGGTGCATGGTTGTCTGTCAGCTCGTGTCTGAGATGTTGGGTTAAGTCCCGCAAC
 GAGCGCAACCCTTATTATCAGTTGCCACCATTAAGTTGGGCACTCTGGTGAGACT
 GCCGGTGACAAACCGGAGGAAGGTGGGGATGACGTCAAATCATCATGCCCTTAT
 GACCTGGGCTACACACGTGCTACAATGGATGGGAAC

Sequence (Reverse)

GGGCCCCGATCAGCGATTCCGACTTCATGTAGCCGACTGACAGCCTACAATCCG
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 ACCATCCATTGTAGCACGTGTGTAGCCGAGGTATAGGGGCATGATGATTTGAC
 GTCATCCCCACCTTCTCCGGTTTGTACCCGGGAGTCTCACCAGAGTGCCCAACTT
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 TGAGTTTCAGCCTTCCGGCCGTACTCCCAAGCGGAATGCTTAATGCGTTAGCTGC
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 CTACCAGGGTATCTAATCCTGTTTGGTACCCTACTTTTCGAGCCTCAGCGTCAGTT
 ACAGACCAGACAGCCGCTTCGCCACTGGTGTCTTCCATATATCTACGCATTTCA
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 CTTCACTCACGCGGCGTTGCTCCATCAGACTTTCGTCCATTGTGGAAGATTCCCTA
 CTGCTCCCTCCCGTAGGAGTTTGGGCCGTGTCTCAGTCCCAATGTGGCCGATTACC
 CTCTCAGGTCGGCTACGTATCATTGCCATGGTGAGCCGTTACCCACCATCTAGCTA
 ATACGCCGCGGGACCATCCAAAAGTGATAGCCGAAGCCATCTTTCAAGCTCGGAC
 CATGCGGTCCAAGTTGTTATGCGGTATTAGCATCTGTTTCCAGGTGTATCCCCCGC
 TTCTGGGCAGGTTTCCCACGGGT

Lb. plantarum AU2

Sequence (Forward)

GGGGAAAGGGGCGGCTATAATGCAAGTCGAACGAACTCTGGTATTGATTGGTGCT
 TGCATCATGATTTACATTTGAGTGAGTGGCGAACTGGTGAGTAACACGTGGGAAA
 CCTGCCCAGAAGCGGGGGATAACACCTGGAAACAGATGCTAATACCGCATAACA
 ACTTGGACCGCATGGTCCGAGCTTGAAAGATGGCTTCGGCTATCACTTTTGGATG
 GTCCCGCGGCGTATTAGCTAGATGGTGGGGTAACGGCTCACCATGGCAATGATAC
 GTAGCCGACCTGAGAGGGTAATCGGCCACATTGGGACTGAGACACGGCCAAAC
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 GTGCATGGTTGTCGTCAGCTCGTGTGTCGTGAGATGTTGGGTTAAGTCCCGCAACGA
 GGGCAACCCTTATTATCAGTTGCCAGCATTAACTTGGGCACCTGTGGTACACTGC
 CGGTGACAAACCGGAGGAAGGTGGGGATGACGTCAAATCATCATGCCCTTATG
 ACCTGGGCTACCACCGTGTACAATGGA

Sequence (Reverse)

GGGGGTTACGGATACTAGCGATTTCGACTTCATGTAGGCGAGTTGCAGCCTACAAT
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 TGTACCATCCATTGTAGCACGTGTGTAGCCAGGTGATAAGGGGCATGATGATTT
 GACGTCAATCCACCTTCCCTCCGGTTTGTACCCGGCAGCTCACCAGAGTGCCCA
 CTTAATGCTGGCAACTGATAATAAGGGTTGCGCTCGTTCCGGGACTTAACCCAAC
 ATCTCACGACACGAGCTGACGACAACCATGCACCACCTGTATCCATGTCCCCGAA
 GGGAACGTCTAATCTCTTAGATTGTCATAGTATGTCAAGACCTGGTAAGGTTCTTC
 GCGTAGCTTCGAATTAACCAATGCTCCACGGCTTGTGCGGGCCCCCGTCAATTC
 CTTTGTAGTTTCAGCCTTCCGGCCGTAATCCCAAGCGGAATGCTTAATGCGTTAGC
 TGCAGCACTGAAGGGCGGAAACCTCCAAACCTTAGCATTATCGTTTACGGTAT
 GGACTACCAGGGTATCTAATCCCTGTTTGTACCCATACTTTCGAGCCTCAGCGTCA
 GTTACAGACCAGACAGCCGCTTCCCACTGGTGTCTTCCATATATCTACGCATT
 TCACCGCTACACATGGAGTTCCACTGTCTCTTCTGCACTCAAGTTTCCCAGTTTC
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 CGGCTGCTGGGCACGTAGTTAGCCGTGGCTTTCTGGTTAAATACCGTCAATACCTGA
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 CTAATACGCCGCGGGACCATCCAAAAGTGATAGCCGAAGCCATCTTCAAGCTCG
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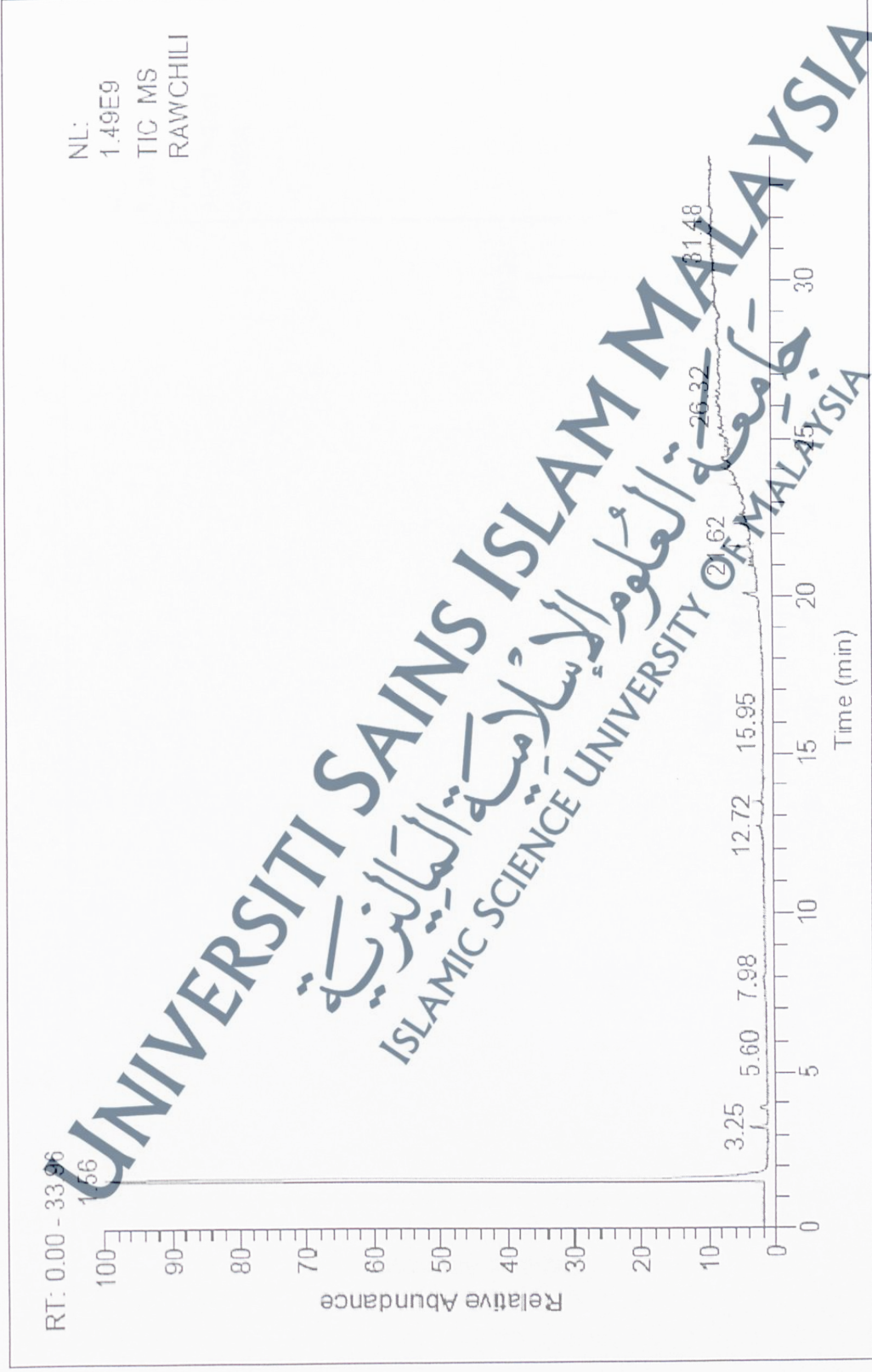
APPENDIX D

ANOVA Table for Microbial and Chemical Analysis

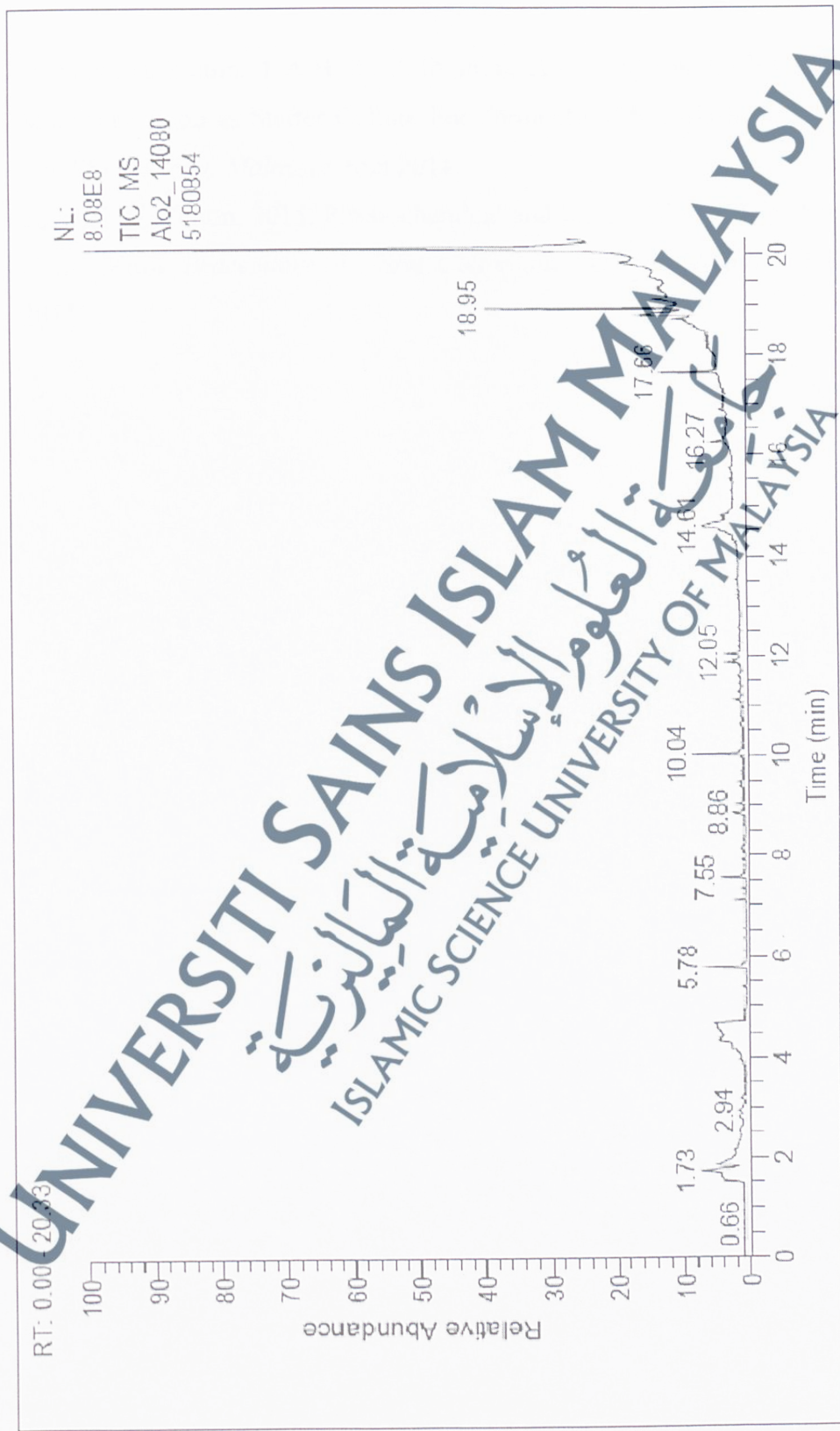
ANOVA	TPC	LAB	Mold and yeast	pH	TTA
LAB	*	*	n.s	*	*
HT	*	n.s	*	n.s	*
FT	*	*	*	*	*
LAB x FT	*	*	n.s	*	*
LAB x HT	n.s	n.s	n.s	n.s	n.s
HT x FT	*	*	*	*	*
LAB x FT x HT	*	*	*	*	*

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VOC Detected in Raw Chili Injected by 1:10 Split Injection



VOC Detected in FCM Inoculated with *Lb. pentosus* ALO2 Detected by Splitless GC-MS



LIST OF PUBLICATIONS.

- Shahidah, M.N., H. Zaiton., F.A.H. Ili. E. Ibrahim. 2014. Potential LAB Isolates from Malaysian Food as Starter Culture For Fermented Chili Mash. *Proceeding of IOCBM. Penang. Malaysia.* Mei 2014.
- Shahidah, M.N. H. Zaiton. 2015. Physiochemical and Microbial Profile of Fermented Chili Mash. *Proceeding of USIM Colloquium. Sepang, Malaysia.* November 2015.

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