

SEQUENCE LISTING

<110> Nestec S.A.

<120> Natural derivative of the *Lactobacillus johnsonii* strain CNCM I-1225, deficient in D-lactic acid production and with an improved shelf life

<150> EP11160140.7

<151> 2011-03-29

<160> 7

<170> BiSSAP 1.0

<210> 1

<211> 1080

<212> DNA

<213> *Lactobacillus johnsonii*

<220>

<221> source

<222> 1..1080

<223> /mol_type="DNA"

/organism="Lactobacillus johnsonii"

<400> 1

aaagacggtc atactattaa ttttgacgga ggtttaattt atgacaaaga tttttgctta 60

cgctattcgt aaagatgaag aacctttctt aaacgaatgg aaagatgcac acaaggatat 120

tgaagttgaa tacactgaca agcttttagc ccctgaaact gctaaattag ctaaggggtgc 180

tgacgggtgtt gttgtttacc aacaattaga ctacactcct gaaactcttc aagcttttagc 240

tgatgctggc gtaactaaga tgtcattacg taacgttggt gttgacaaca tcgacatgga 300

caaggctaaa gaattaggct ttgaaatcac taacgttcct gtatactctc ctgacgcaat 360

tgctgaacat gctgcaattc aagctgctcg cgtactacgt caagataagc gtatggatga 420

aaagatggct aagcgcgact tacgctgggc acctactatt ggtcgtgaag ttcgtgacca 480

agttgttgggt gttgtaggta ctggtcacat cggcgaagta tttatgaaga ttatggaagg 540

ctttggcgca aaagttattg cttacgatat cttcaagaac ccagaacttg aaaagaaggg 600

ttactacgtt gactcacttg atgacttata caagcaagct gatgtaattt cacttcacgt 660

tccagatggt ccagcaaagc ttcacatgat taatgatgaa tcaatcgcta agatgaaaga 720

tggcggttgta atcgtaaact gctcacgtgg tccacttggt gacactgacg ctgttatccg 780
 cggccttagat tctggtaaga tctttgggtt cgtaatggac acttacgaag gtgaagttgg 840
 tgtatttaac gaagattggg aaggtaaaga attcccagat gctcgtttag ctgacttaat 900
 cgatcgcca aatgtattgg taactccaca tactgctttc tacactactc atgctgtacg 960
 taacatggta actaaagcat ttgacaacaa cttaaagatg atcaacggtg aaaaaccaga 1020
 ttctccagtt gctttggaca agaacaagtt ctaaaaatca aattatgata atcaaaaaga 1080

<210> 2

<211> 337

<212> PRT

<213> *Lactobacillus johnsonii*

<220>

<221> SOURCE

<222> 1..337

<223> /mol_type="protein"

/organism="Lactobacillus johnsonii"

<400> 2

Met	Thr	Lys	Ile	Phe	Ala	Tyr	Ala	Ile	Arg	Lys	Asp	Glu	Glu	Pro	Phe
1				5					10					15	
Leu	Asn	Glu	Trp	Lys	Asp	Ala	His	Lys	Asp	Ile	Glu	Val	Glu	Tyr	Thr
			20					25					30		
Asp	Lys	Leu	Leu	Ala	Pro	Glu	Thr	Ala	Lys	Leu	Ala	Lys	Gly	Ala	Asp
		35					40					45			
Gly	Val	Val	Val	Tyr	Gln	Gln	Leu	Asp	Tyr	Thr	Pro	Glu	Thr	Leu	Gln
	50					55				60					
Ala	Leu	Ala	Asp	Ala	Gly	Val	Thr	Lys	Met	Ser	Leu	Arg	Asn	Val	Gly
65				70					75					80	
Val	Asp	Asn	Ile	Asp	Met	Asp	Lys	Ala	Lys	Glu	Leu	Gly	Phe	Glu	Ile
			85					90					95		
Thr	Asn	Val	Pro	Val	Tyr	Ser	Pro	Asp	Ala	Ile	Ala	Glu	His	Ala	Ala
		100						105					110		
Ile	Gln	Ala	Ala	Arg	Val	Leu	Arg	Gln	Asp	Lys	Arg	Met	Asp	Glu	Lys
		115					120					125			
Met	Ala	Lys	Arg	Asp	Leu	Arg	Trp	Ala	Pro	Thr	Ile	Gly	Arg	Glu	Val
	130					135				140					
Arg	Asp	Gln	Val	Val	Gly	Val	Val	Gly	Thr	Gly	His	Ile	Gly	Gln	Val
145				150					155					160	
Phe	Met	Lys	Ile	Met	Glu	Gly	Phe	Gly	Ala	Lys	Val	Ile	Ala	Tyr	Asp
			165					170					175		
Ile	Phe	Lys	Asn	Pro	Glu	Leu	Glu	Lys	Lys	Gly	Tyr	Tyr	Val	Asp	Ser
			180					185					190		

Leu Asp Asp Leu Tyr Lys Gln Ala Asp Val Ile Ser Leu His Val Pro
 195 200 205
 Asp Val Pro Ala Asn Val His Met Ile Asn Asp Glu Ser Ile Ala Lys
 210 215 220
 Met Lys Asp Gly Val Val Ile Val Asn Cys Ser Arg Gly Pro Leu Val
 225 230 235 240
 Asp Thr Asp Ala Val Ile Arg Gly Leu Asp Ser Gly Lys Ile Phe Gly
 245 250 255
 Phe Val Met Asp Thr Tyr Glu Gly Glu Val Gly Val Phe Asn Glu Asp
 260 265 270
 Trp Glu Gly Lys Glu Phe Pro Asp Ala Arg Leu Ala Asp Leu Ile Asp
 275 280 285
 Arg Pro Asn Val Leu Val Thr Pro His Thr Ala Phe Tyr Thr Thr His
 290 295 300
 Ala Val Arg Asn Met Val Thr Lys Ala Phe Asp Asn Asn Leu Lys Met
 305 310 315 320
 Ile Asn Gly Glu Lys Pro Asp Ser Pro Val Ala Leu Asp Lys Asn Lys
 325 330 335
 Phe

<210> 3
 <211> 20
 <212> DNA
 <213> Lactobacillus johnsonii

<220>
 <221> source
 <222> 1..20
 <223> /mol_type="DNA"
 /organism="Lactobacillus johnsonii"

<400> 3
 tcagcacata accagcagct 20

<210> 4
 <211> 20
 <212> DNA
 <213> Lactobacillus johnsonii

<220>
 <221> source
 <222> 1..20
 <223> /mol_type="DNA"
 /organism="Lactobacillus johnsonii"

<400> 4
 gcaataatac tgtcgccggt 20

<210> 5
 <211> 20
 <212> DNA
 <213> Lactobacillus johnsonii

<220>
 <221> source
 <222> 1..20
 <223> /mol_type="DNA"
 /organism="Lactobacillus johnsonii"

<400> 5
 gtgtataata aaagacggtc 20

<210> 6
 <211> 1014
 <212> DNA
 <213> Lactobacillus johnsonii

<220>
 <221> source
 <222> 1..1014
 <223> /mol_type="DNA"
 /organism="Lactobacillus johnsonii"

<400> 6
 atgacaaaga tttttgctta cgctattcgt aaagatgaag aacctttctt aaacgaatgg 60
 aaagatgcac acaaggatat tgaagttgaa tacactgaca agcttttagc ccctgaaact 120
 gctaaattag ctaaggggtgc tgacgggtgtt gttgtttacc aacaattaga ctacactcct 180
 gaaactcttc aagcttttagc tgatgctggc gtaactaaga tgtcattaca taacgttggt 240
 gttgacaaca tcgacatgga caaggctaaa gaattaggct ttgaaatcac taacgttcct 300
 gtatactctc ctgacgcaat tgctgaacat gctgcaattc aagctgctcg cgtactacgt 360
 caagataagc gtatggatga aaagatggct aagcgcgact tacgctgggc acctactatt 420
 ggtcgtgaag ttcgtgacca agttgttggt gttgtaggta ctggtcacat cgggtcaagta 480
 tttatgaaga ttatggaagg ctttggcgca aaagttattg cttacgatat cttcaagaac 540
 ccagaacttg aaaagaaggg ttactacgtt gactcacttg atgacttata caagcaagct 600
 gatgtaattt cacttcacgt tccagatggt ccagcaaacg ttcacatgat taatgatgaa 660

```

tcaatcgcta agatgaaaga tggcggttgta atcgtaaact gctcacgtgg tccacttggt      720
gacactgacg ctgttatccg cggccttagat tctggtaaga tctttgggttt cgtaatggac      780
acttacgaag gtgaagttgg tgtatttaac gaagattggg aaggtaaaga attcccagat      840
gctcgtttag ctgacttaat cgatcgcca aatgtattgg taactccaca tactgctttc      900
tacactactc atgctgtacg taacatggta actaaagcat ttgacaacaa cttaaagatg      960
atcaacggtg aaaaaccaga ttctccagtt gctttggaca agaacaagtt ctaa      1014

```

<210> 7

<211> 337

<212> PRT

<213> *Lactobacillus johnsonii*

<220>

<221> SOURCE

<222> 1..337

<223> /mol_type="protein"

/organism="Lactobacillus johnsonii"

<400> 7

```

Met Thr Lys Ile Phe Ala Tyr Ala Ile Arg Lys Asp Glu Glu Pro Phe
1           5           10           15
Leu Asn Glu Trp Lys Asp Ala His Lys Asp Ile Glu Val Glu Tyr Thr
          20           25           30
Asp Lys Leu Leu Ala Pro Glu Thr Ala Lys Leu Ala Lys Gly Ala Asp
          35           40           45
Gly Val Val Val Tyr Gln Gln Leu Asp Tyr Thr Pro Glu Thr Leu Gln
          50           55           60
Ala Leu Ala Asp Ala Gly Val Thr Lys Met Ser Leu His Asn Val Gly
65           70           75           80
Val Asp Asn Ile Asp Met Asp Lys Ala Lys Glu Leu Gly Phe Glu Ile
          85           90           95
Thr Asn Val Pro Val Tyr Ser Pro Asp Ala Ile Ala Glu His Ala Ala
          100          105          110
Ile Gln Ala Ala Arg Val Leu Arg Gln Asp Lys Arg Met Asp Glu Lys
          115          120          125
Met Ala Lys Arg Asp Leu Arg Trp Ala Pro Thr Ile Gly Arg Glu Val
          130          135          140
Arg Asp Gln Val Val Gly Val Val Gly Thr Gly His Ile Gly Gln Val
145          150          155          160
Phe Met Lys Ile Met Glu Gly Phe Gly Ala Lys Val Ile Ala Tyr Asp
          165          170          175
Ile Phe Lys Asn Pro Glu Leu Glu Lys Lys Gly Tyr Tyr Val Asp Ser
          180          185          190

```

Leu	Asp	Asp	Leu	Tyr	Lys	Gln	Ala	Asp	Val	Ile	Ser	Leu	His	Val	Pro			
																195	200	205
Asp	Val	Pro	Ala	Asn	Val	His	Met	Ile	Asn	Asp	Glu	Ser	Ile	Ala	Lys			
																210	215	220
Met	Lys	Asp	Gly	Val	Val	Ile	Val	Asn	Cys	Ser	Arg	Gly	Pro	Leu	Val			
																225	230	235
Asp	Thr	Asp	Ala	Val	Ile	Arg	Gly	Leu	Asp	Ser	Gly	Lys	Ile	Phe	Gly			
																245	250	255
Phe	Val	Met	Asp	Thr	Tyr	Glu	Gly	Glu	Val	Gly	Val	Phe	Asn	Glu	Asp			
																260	265	270
Trp	Glu	Gly	Lys	Glu	Phe	Pro	Asp	Ala	Arg	Leu	Ala	Asp	Leu	Ile	Asp			
																275	280	285
Arg	Pro	Asn	Val	Leu	Val	Thr	Pro	His	Thr	Ala	Phe	Tyr	Thr	Thr	His			
																290	295	300
Ala	Val	Arg	Asn	Met	Val	Thr	Lys	Ala	Phe	Asp	Asn	Asn	Leu	Lys	Met			
																305	310	315
Ile	Asn	Gly	Glu	Lys	Pro	Asp	Ser	Pro	Val	Ala	Leu	Asp	Lys	Asn	Lys			
																325	330	335
Phe																		