

SEQUENCE LISTING

<110> Nestec S.A.

<120> Sugar reduction of food products

<130> 14104-WO-PCT

<160> 1

<170> BiSSAP 1.2

<210> 1

<211> 1772

<212> PRT

<213> Lactobacillus reuteri

<400> 1

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Met Glu Ile Lys Lys His Phe Lys Leu Tyr Lys Ser Gly Lys Gln Trp
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Val Thr Ala Ala Val Ala Thr Val Ala Val Ser Thr Ala Leu Leu Tyr
      20      25      30
Gly Gly Val Ala His Ala Asp Gln Val Gln Ser Ser Thr Thr Gln
      35      40      45
Glu Gln Thr Ser Thr Val Asn Ala Asp Thr Thr Lys Thr Val Asn Leu
      50      55      60
Asp Thr Asn Thr Asp Gln Pro Ala Gln Thr Thr Asp Lys Asn Gln Val
      65      70      75      80
Ala Asn Asp Thr Thr Asn Gln Ser Lys Thr Asp Ser Thr Ser Thr
      85      90      95
Thr Val Lys Asn Pro Thr Phe Ile Pro Val Ser Thr Leu Ser Ser Ser
      100      105      110
Asp Asn Glu Lys Gln Ser Gln Asn Tyr Asn Lys Pro Asp Asn Gly Asn
      115      120      125
Tyr Gly Asn Val Asp Ala Ala Tyr Phe Asn Asn Asn Gln Leu His Ile
      130      135      140
Ser Gly Trp His Ala Thr Asn Ala Ser Gln Gly Thr Asp Ser Arg Gln
      145      150      155      160
Val Ile Val Arg Asp Ile Thr Thr Lys Thr Glu Leu Gly Arg Thr Asn
      165      170      175
Val Thr Asn Asn Val Leu Arg Pro Asp Val Lys Asn Val His Asn Val
      180      185      190
Tyr Asn Ala Asp Asn Ser Gly Phe Asp Val Asn Ile Asn Ile Asp Phe
      195      200      205
Ser Lys Met Lys Asp Tyr Arg Asp Ser Ile Glu Ile Val Ser Arg Tyr
      210      215      220
Ser Gly Asn Gly Lys Ser Val Asp Trp Trp Ser Gln Pro Ile Thr Phe
      225      230      235      240
Asp Lys Asn Asn Tyr Ala Tyr Leu Asp Thr Phe Glu Val Lys Asn Gly
      245      250      255
Glu Leu His Ala Thr Gly Trp Asn Ala Thr Asn Lys Ala Ile Asn Tyr
      260      265      270
Asn His His Phe Val Ile Leu Phe Asp Arg Thr Asn Gly Lys Glu Val
      275      280      285
Thr Arg Gln Glu Val Arg Asp Gly Gln Ser Arg Pro Asp Val Ala Lys
      290      295      300
Val Tyr Pro Gln Val Val Gly Ala Asn Asn Ser Gly Phe Asp Val Thr
      305      310      315      320
Phe Asn Ile Gly Asp Leu Asp Tyr Thr His Gln Tyr Gln Ile Leu Ser
      325      330      335
Arg Tyr Ser Asn Ala Asp Asn Gly Glu Gly Asp Tyr Val Thr Tyr Trp
      340      345      350
Phe Ala Pro Gln Ser Ile Ala Pro Ala Asn Gln Ser Asn Gln Gly Tyr
      355      360      365
Leu Asp Ser Phe Asp Ile Ser Lys Asn Gly Glu Val Thr Val Thr Gly
      370      375      380
Trp Asn Ala Thr Asp Leu Ser Glu Leu Gln Thr Asn His Tyr Val Ile
      385      390      395      400

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14104_seq_1

Leu	Phe	Asp	Gln	Thr	Ala	Gly	Gln	Gln	Val	Ala	Ser	Ala	Lys	Val	Asp
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Leu	Ile	Ser	Arg	Pro	Asp	Val	Ala	Lys	Ala	Tyr	Pro	Thr	Val	Lys	Thr
			420					425					430		
Ala	Glu	Thr	Ser	Gly	Phe	Lys	Val	Thr	Phe	Lys	Val	Ser	Asn	Leu	Gln
		435					440					445			
Pro	Gly	His	Gln	Tyr	Ser	Val	Val	Ser	Arg	Phe	Ser	Ala	Asp	Glu	Asn
	450					455					460				
Gly	Asn	Gly	Asn	Asp	Lys	Arg	His	Thr	Asp	Tyr	Trp	Tyr	Ser	Pro	Val
465				470					475						480
Thr	Leu	Asn	Gln	Thr	Ala	Ser	Asn	Ile	Asp	Thr	Ile	Thr	Met	Thr	Ser
			485						490					495	
Asn	Gly	Leu	His	Ile	Thr	Gly	Trp	Met	Ala	Ser	Asp	Asn	Ser	Ile	Asn
			500					505					510		
Glu	Ala	Thr	Pro	Tyr	Ala	Ile	Ile	Leu	Asn	Asn	Gly	Arg	Glu	Val	Thr
		515					520					525			
Arg	Gln	Lys	Leu	Thr	Leu	Ile	Ala	Arg	Pro	Asp	Val	Ala	Ala	Val	Tyr
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Pro	Ser	Leu	Tyr	Asn	Ser	Ala	Val	Ser	Gly	Phe	Asp	Thr	Thr	Ile	Lys
545				550						555					560
Leu	Thr	Asn	Ala	Gln	Tyr	Gln	Ala	Leu	Asn	Gly	Gln	Leu	Gln	Val	Leu
			565					570						575	
Leu	Arg	Phe	Ser	Lys	Ala	Val	Asp	Gly	Asn	Pro	Asn	Gly	Thr	Asn	Thr
		580						585					590		
Val	Thr	Asp	Gln	Phe	Ser	Lys	Asn	Tyr	Ala	Thr	Thr	Gly	Gly	Asn	Phe
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Asp	Tyr	Val	Lys	Val	Asn	Gly	Asn	Gln	Ile	Glu	Phe	Ser	Gly	Trp	His
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Ala	Thr	Asn	Gln	Ser	Asn	Asp	Lys	Asn	Ser	Gln	Trp	Ile	Ile	Val	Leu
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Val	Asn	Gly	Lys	Glu	Val	Lys	Arg	Gln	Leu	Val	Asn	Asp	Thr	Lys	Asp
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Gly	Ala	Ala	Gly	Phe	Asn	Arg	Asn	Asp	Val	Tyr	Lys	Val	Asn	Pro	Ala
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Ile	Glu	Asn	Ser	Ile	Met	Ser	Gly	Phe	Gln	Gly	Ile	Ile	Thr	Leu	Pro
		675					680								
Val	Thr	Val	Lys	Asp	Glu	Asn	Val	Gln	Leu	Val	His	Arg	Phe	Ser	Asn
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Asp	Ala	Lys	Thr	Gly	Glu	Gly	Asn	Tyr	Val	Asp	Phe	Trp	Ser	Glu	Val
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Met	Ser	Val	Lys	Asp	Ser	Phe	Gln	Lys	Gly	Asn	Gly	Pro	Leu	Asn	Gln
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Phe	Gly	Leu	Gln	Thr	Ile	Asn	Gly	Gln	Gln	Tyr	Tyr	Ile	Asp	Pro	Thr
			740					745					750		
Thr	Gly	Gln	Pro	Arg	Lys	Asn	Phe	Leu	Leu	Gln	Asn	Gly	Asn	Asp	Trp
		755					760					765			
Ile	Tyr	Phe	Asp	Lys	Asp	Thr	Gly	Ala	Gly	Thr	Asn	Ala	Leu	Lys	Leu
	770					775					780				
Gln	Phe	Asp	Lys	Gly	Thr	Ile	Ser	Ala	Asp	Glu	Gln	Tyr	Arg	Arg	Gly
785				790						795					800
Asn	Glu	Ala	Tyr	Ser	Tyr	Asp	Asp	Lys	Ser	Ile	Glu	Asn	Val	Asn	Gly
			805						810					815	
Tyr	Leu	Thr	Ala	Asp	Thr	Trp	Tyr	Arg	Pro	Lys	Gln	Ile	Leu	Lys	Asp
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Gly	Thr	Thr	Trp	Thr	Asp	Ser	Lys	Glu	Thr	Asp	Met	Arg	Pro	Ile	Leu
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Met	Val	Trp	Trp	Pro	Asn	Thr	Val	Thr	Gln	Ala	Tyr	Tyr	Leu	Asn	Tyr
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865					870					875					880
Thr	Asp	Ala	Asp	Ser	Ala	Glu	Leu	Asn	His	Tyr	Ser	Glu	Leu	Val	Gln
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Gln	Asn	Ile	Glu	Lys	Arg	Ile	Ser	Glu	Thr	Gly	Ser	Thr	Asp	Trp	Leu
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Arg	Thr	Leu	Met	His	Glu	Phe	Val	Thr	Lys	Asn	Ser	Met	Trp	Asn	Lys
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Asp	Ser	Glu	Asn	Val	Asp	Tyr	Gly	Gly	Leu	Gln	Leu	Gln	Gly	Gly	Phe
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Leu	Lys	Tyr	Val	Asn	Ser	Asp	Leu	Thr	Lys	Tyr	Ala	Asn	Ser	Asp	Trp

14104_seq_1

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	Val	Gln	Ala	Glu	Glu	Leu	Asn	Trp	Leu	Tyr	Tyr	Leu	Met	Asn	Phe	Gly	
			995	Gly	Asn	Asn	Pro	Glu	Ala	Asn	Phe	Asp	Gly	Ile	Arg	Val	
	Thr	Ile	Thr	Gly	Asn	Asn	Pro	Glu	Ala	Asn	Phe	Asp	Gly	Ile	Arg	Val	
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	Asp	Ala	Val	Asp	Asn	Val	Asp	Val	Asp	Leu	Leu	Ser	Ile	Ala	Arg	Asp	
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	Tyr	Phe	Asn	Ala	Ala	Tyr	Asn	Met	Glu	Gln	Ser	Asp	Ala	Ser	Ala	Asn	
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	Lys	Pro	Tyr	Gly	Glu	Phe	Asn	Leu	Asp	Asp	Glu	Lys	Lys	Gly	Met	Glu	
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	Ala	Tyr	Ile	Asn	Asp	Gln	Asn	Ser	Thr	Asn	Lys	Lys	Trp	Asn	Leu	Tyr	
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	Glu	His	Lys	Thr	Arg	Tyr	Phe	Asp	Thr	Ile	Thr	Asn	Leu	Leu	Lys	Thr	
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	His	Met	Gly	Ala	Ala	His	Lys	Asn	Gln	Lys	Tyr	Arg	Ala	Val	Ile	Leu	
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14104_seq_1

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Val Thr Arg Ser Asp Asp His Gly Thr Thr Trp Glu Val Ser Pro Ile
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Lys Asn Val Val Tyr Ile Thr Asn Thr Ile Gly Gly Gly Glu Tyr Gln
1540 1545 1550
Lys Lys Tyr Gly Gly Glu Phe Leu Asp Thr Leu Gln Lys Glu Tyr Pro
1555 1560 1565
Gln Leu Phe Ser Gln Val Tyr Pro Val Thr Gln Thr Thr Ile Asp Pro
1570 1575 1580
Ser Val Lys Ile Lys Glu Trp Ser Ala Lys Tyr Phe Asn Gly Thr Asn
1585 1590 1595 1600
Ile Leu His Arg Gly Ala Gly Tyr Val Leu Arg Ser Asn Asp Gly Lys
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Tyr Tyr Asn Leu Gly Thr Ser Thr Gln Gln Phe Leu Pro Ser Gln Leu
1620 1625 1630
Ser Val Gln Asp Asn Glu Gly Tyr Gly Phe Val Lys Glu Gly Asn Asn
1635 1640 1645
Tyr His Tyr Tyr Asp Glu Asn Lys Gln Met Val Lys Asp Ala Phe Ile
1650 1655 1660
Gln Asp Ser Val Gly Asn Trp Tyr Tyr Phe Asp Lys Asn Gly Asn Met
1665 1670 1675 1680
Val Ala Asn Gln Ser Pro Val Glu Ile Ser Ser Asn Gly Ala Ser Gly
1685 1690 1695
Thr Tyr Leu Phe Leu Asn Asn Gly Thr Ser Phe Arg Ser Gly Leu Val
1700 1705 1710
Lys Thr Asp Ala Gly Thr Tyr Tyr Tyr Asp Gly Asp Gly Arg Met Val
1715 1720 1725
Arg Asn Gln Thr Val Ser Asp Gly Ala Met Thr Tyr Val Leu Asp Glu
1730 1735 1740
Asn Gly Lys Leu Val Ser Glu Ser Phe Asp Ser Ser Ala Thr Glu Ala
1745 1750 1755 1760
His Pro Leu Lys Pro Gly Asp Leu Asn Gly Gln Lys
1765 1770

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