

SEQUENCE LISTING

<110> Evonik Degussa GmbH

<120> Mikrobiologische Herstellung von Isoprenoiden

<130> 200700620

<160> 38

<170> PatentIn version 3.4

<210> 1

<211> 927

<212> DNA

<213> Taraxacum kok-saghyz

<400> 1

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gagggtactc tcaaaaccgt cgtcgccccg gcacgtgaca cttccataa cgtccctgct 240
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<213> Taraxacum kok-saghyz

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20

25

30

Asn Ala Thr Leu Arg Lys Leu Val Phe Arg Val Ile Ala Ser Arg Pro

35

40

45

Ile Pro Glu His Ile Ala Phe Ile Leu Asp Gly Asn Arg Arg Phe Ala

50

55

60

Arg Lys Trp Asn Leu Thr Glu Gly Thr Gly His Lys Thr Gly Phe Leu

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Glu	Val	Gln	Tyr	Val	Met	Asp	Leu	Met	Gln	Asp	Lys	Ile	Glu	Gly	Phe
		115					120					125			
Leu	Lys	Glu	Val	Ser	Ile	Ile	Asn	Gln	Tyr	Gly	Val	Arg	Val	Leu	Phe
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Ile	Gly	Asp	Leu	Asp	Arg	Leu	Tyr	Glu	Pro	Val	Arg	Ile	Ala	Ala	Glu
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Lys	Ala	Met	Glu	Ala	Thr	Ala	Lys	Asn	Ser	Thr	Thr	Tyr	Leu	Leu	Val
			165					170					175		
Cys	Val	Ala	Tyr	Thr	Ser	Ser	His	Glu	Ile	Pro	Arg	Ala	Ile	His	Glu
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Ala	Cys	Glu	Glu	Lys	Ser	Gly	Ala	Met	Ala	Asn	Ser	Ile	Arg	Val	Met
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Gly	Ser	Gln	Ala	Val	Ile	Lys	Val	Val	Asp	Leu	Asp	Lys	His	Met	Tyr
225				230					235					240	
Met	Gly	Val	Ala	Pro	Asp	Pro	Asp	Ile	Leu	Val	Arg	Ser	Ser	Gly	Glu
			245					250					255		
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		260						265					270		
Tyr	Ser	Pro	Lys	Ala	Leu	Trp	Pro	Glu	Met	Gly	Phe	Trp	Gln	Val	Val
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Trp	Gly	Ile	Leu	Glu	Phe	Gln	Asn	Asn	Tyr	Asn	Tyr	Leu	Glu	Lys	Lys

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290 295 300

Lys Lys Gln Ala
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<212> PRT
<213> Taraxacum kok-saghyz
<400> 9

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Asn Ala Thr Leu Arg Lys Leu Val Phe Arg Val Ile Ala Ser Arg Pro
35 40 45

Ile Pro Glu His Ile Ala Phe Ile Leu Asp Gly Asn Arg Arg Phe Ala
50 55 60

Arg Lys Trp Asn Leu Thr Glu Gly Ala Gly His Lys Thr Gly Phe Leu
65 70 75 80

Ala Leu Met Ser Val Leu Lys Tyr Cys Tyr Glu Ile Gly Val Lys Tyr
85 90 95

Val Thr Ile Tyr Ala Phe Ser Leu Asp Asn Phe Asn Arg Arg Pro Asp
100 105 110

Glu Val Gln Tyr Val Met Asp Leu Met Gln Asp Lys Ile Glu Gly Phe
115 120 125

Leu Lys Glu Val Ser Ile Ile Asn Gln Tyr Gly Val Arg Val Leu Phe
130 135 140

Ile Gly Asp Leu Asp Arg Leu Tyr Glu Pro Val Arg Ile Ala Ala Glu
145 150 155 160

Lys Ala Met Glu Ala Thr Ala Lys Asn Ser Thr Thr Tyr Leu Leu Val
165 170 175

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Cys Val Ala Tyr Thr Ser Ser His Glu Ile Pro Arg Ala Ile His Glu
180 185 190

Ala Cys Glu Glu Lys Asp Gly Ala Met Ala Asn Ser Ile Arg Asp Met
195 200 205

Lys Gly Lys Gly Val Phe Asn Gly Asp Gly Tyr Thr Asn Val Asn His
210 215 220

Gly Ser Gln Ala Val Ile Lys Val Val Asp Leu Asp Lys His Met Tyr
225 230 235 240

Met Gly Val Ala Pro Asp Pro Asp Ile Leu Val Arg Ser Ser Gly Glu
245 250 255

Thr Arg Leu Ser Asn Phe Leu Leu Trp Gln Thr Thr Asn Cys Leu Leu
260 265 270

Tyr Ser Pro Lys Ala Leu Trp Pro Glu Met Gly Phe Trp Gln Val Val
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Trp Gly Ile Leu Glu Phe Gln Asn Asn Tyr Asn Tyr Leu Glu Lys Lys
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Lys Lys Gln Ala
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<213> Taraxacum kok-saghyz

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Glu Glu Glu Arg Ser Asn Gly Arg Ile Gly Asn Phe Leu Gly Gly Leu
20 25 30

Asn Ala Thr Leu Arg Lys Leu Val Phe Arg Val Ile Ala Ser Arg Pro
35 40 45

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Ile Pro Glu His Ile Ala Phe Ile Leu Asp Gly Asn Arg Arg Phe Ala
50 55 60

Arg Lys Trp Asn Leu Thr Glu Gly Ala Gly His Lys Thr Gly Phe Leu
65 70 75 80

Ala Leu Met Ser Val Leu Lys Tyr Cys Tyr Glu Ile Gly Val Lys Tyr
85 90 95

Val Thr Ile Tyr Ala Phe Ser Leu Asp Asn Phe Asn Arg Arg Pro Asp
100 105 110

Glu Val Gln Tyr Val Met Asp Leu Met Gln Asp Lys Ile Glu Gly Phe
115 120 125

Leu Lys Glu Val Ser Ile Ile Asn Gln Tyr Gly Val Arg Val Leu Phe
130 135 140

Ile Gly Asp Leu Asp Arg Leu Tyr Glu Pro Val Arg Ile Ala Ala Glu
145 150 155 160

Lys Ala Met Glu Ala Thr Ala Lys Asn Ser Thr Thr Tyr Leu Leu Val
165 170 175

Cys Val Ala Tyr Thr Ser Ser His Glu Ile Pro Arg Ala Ile His Glu
180 185 190

Ala Cys Glu Glu Ser Ile Arg Val Met Asn Gly Asn Gly Phe Phe Asn
195 200 205

Gly Ser Gly Tyr Thr Asn Val Asn His Gly Ser Gln Ala Val Ile Lys
210 215 220

Val Val Asp Leu Asp Lys His Met Tyr Met Gly Val Ala Pro Asp Pro
225 230 235 240

Asp Ile Leu Val Arg Ser Ser Gly Glu Thr Arg Leu Ser Asn Phe Leu
245 250 255

Leu Trp Gln Thr Thr Asn Cys Leu Leu Tyr Ser Pro Lys Ala Leu Trp
260 265 270

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<213> Taraxacum kok-saghyz

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20 25 30

Arg Val Ile Ala Ser Arg Pro Ile Pro Glu His Ile Ala Phe Ile Leu
35 40 45

Asp Gly Asn Arg Arg Phe Ala Arg Lys Trp Asn Leu Thr Glu Gly Ala
50 55 60

Gly His Lys Thr Gly Phe Leu Ala Leu Met Ser Val Leu Lys Tyr Cys
65 70 75 80

Tyr Glu Ile Gly Val Lys Tyr Val Thr Ile Tyr Ala Phe Ser Leu Asp
85 90 95

Asn Phe Asn Arg Arg Pro Asp Glu Val Gln Tyr Val Met Asp Leu Met
100 105 110

Gln Asp Lys Ile Glu Gly Phe Leu Lys Glu Val Ser Ile Ile Asn Gln
115 120 125

Tyr Gly Val Arg Val Leu Phe Ile Gly Asp Leu Asp Arg Leu Tyr Glu
130 135 140

Pro Val Arg Ile Ala Ala Glu Lys Ala Met Glu Ala Thr Ala Lys Asn
145 150 155 160

Ser Thr Thr Tyr Leu Leu Val Cys Val Ala Tyr Thr Ser Ser His Glu

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165 170 175
Ile Pro Arg Ala Ile His Glu Ala Cys Glu Glu Lys Asp Gly Ala Met
180 185 190
Ala Asn Ser Ile Arg Asp Thr Lys Gly Lys Gly Val Phe Asn Gly Asp
195 200 205
Gly Tyr Thr Asn Val Asn His Gly Ser Gln Ala Val Ile Lys Val Val
210 215 220
Asp Leu Asp Lys His Met Tyr Met Gly Val Ala Pro Asp Pro Asp Ile
225 230 235 240
Leu Val Arg Ser Ser Gly Glu Thr Arg Leu Ser Asn Phe Leu Leu Trp
245 250 255
Gln Thr Thr Asn Cys Leu Leu Tyr Ser Pro Lys Ala Leu Trp Pro Glu
260 265 270
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275 280 285
Tyr Asn Tyr Leu Glu Lys Lys Lys Lys Gln Ala
290 295
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35 40 45
Gly Pro Leu Lys Pro His Val Glu Thr Leu Glu Ser Thr Ile Lys Pro
50 55 60

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Val Val Gly Pro Ala Tyr Asp Lys Phe Gln Asp Ala His Thr Gly Val
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His Lys Phe Val Asp Arg Lys Phe Asp Glu Val Met Pro Pro Ala Val
85 90 95

Lys Asp Ala Thr Thr Thr Ala Arg Ser Leu Ser Thr Asn Val Ala Ser
100 105 110

Glu Val Lys Asn Asn Gly Val Leu Gly Thr Ala Lys Glu Leu Leu Val
115 120 125

Lys Ile Glu Pro Leu Ala Glu Glu Tyr Ala Ser Ser Ala Trp Lys Thr
130 135 140

Leu Asn Tyr Val Pro Tyr Val Thr Thr Phe Ala Lys Ala Val Ala Pro
145 150 155 160

Thr Ala Ser Tyr Tyr Ser Glu Lys Tyr Asn Glu Thr Val Gln Gln Ser
165 170 175

Ala Glu Lys Gly Tyr Lys Val Ser Ser Tyr Val Pro Leu Val Pro Thr
180 185 190

Asp Lys Ile Ala Arg Val Phe Cys Ile Pro Glu Pro Glu Ser Ala Gly
195 200 205

Pro Gly Gly Glu Ala Lys Asp Lys Glu Val Pro Gly Gly Gly Glu Gly
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Gly Glu Ala Ala Ala Gly Gly Asp Glu Ile Val Glu Glu Thr
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<212> PRT

<213> Taraxacum kok-saghyz

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Met Ala Asp Asn Ala Val Pro Val Ser Ser Gln Pro Ala Glu Val Gln
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Ser Glu Gln Glu Lys Leu Lys Tyr Leu Thr Phe Val Gln Glu Ala Ala
20 25 30

Lys Gln Ala Val Pro Tyr Ala Ser Lys Ala Tyr Asp His Ala Lys Glu
35 40 45

Asn Ser Gly Ser Leu Lys Pro Gly Val Glu Ala Ile Glu Gly Thr Leu
50 55 60

Lys Thr Val Val Gly Pro Ala Arg Asp Thr Phe His Asn Val Pro Ala
65 70 75 80

Asp Val Leu Lys Phe Val Asp Arg Lys Val Glu Glu Ser Val Thr Lys
85 90 95

Ala Met Ala Ser Ser Val Ala Thr Glu Ile Lys Ser His Gly Val Met
100 105 110

Glu Thr Ala Ser Gly Phe Ala Lys Thr Ala Tyr Thr Lys Met Glu Pro
115 120 125

Thr Ala Lys Glu Leu His Val Lys Tyr Glu Pro Val Ala Glu Gln His
130 135 140

Ala Ala Ala Ala Trp His Ser Leu Asn Lys Met Pro Met Phe Arg Ser
145 150 155 160

Val Ala Lys Val Val Ile Pro Thr Ala Ala Phe Leu Ser Glu Lys Tyr
165 170 175

Asn Glu Thr Val Gln His Thr Ala Glu Glu Gly Tyr Gln Val Ser Ser
180 185 190

Tyr Leu Pro Leu Val Pro Thr Glu Lys Ile Ala Lys Val Phe Lys Ala
195 200 205

Pro Glu Glu Pro Glu Val Glu Leu Glu Pro Glu His Val Val His Ser
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Gly Glu Glu Gly Ala Val Val Ala His
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<213> Taraxacum kok-saghyz

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20 25 30

His Ala Ile Leu Tyr Ala Thr Arg Ala Tyr Gly Tyr Ala Lys Asp Asn
35 40 45

Ser Gly Pro Leu Lys Pro Ser Val Glu Thr Ile Glu Gly Thr Leu Lys
50 55 60

Thr Val Val Ser Pro Ala Tyr Gln Lys Phe His Gly Val Pro Val Glu
65 70 75 80

Val Leu Lys Leu Val Asp Arg Lys Val Asp Glu Ser Val Thr Ile Ile
85 90 95

Asp Ser Arg Val Pro Pro Leu Leu Lys Glu Val Lys Thr Ala Gly Val
100 105 110

Val Glu Thr Ala Ser Gly Leu Ala Lys Thr Ala Tyr Thr Lys Ile Glu
115 120 125

Pro Ala Ala Lys Gly Leu Tyr Val Lys Tyr Glu Pro Val Ala Glu Gln
130 135 140

Tyr Ala Ala Ser Ala Trp His Ser Leu Asn Gln Leu Pro Ile Phe Gln
145 150 155 160

Arg Trp Leu Met Trp Leu Tyr Gln Lys Gln Leu Thr Ile Leu Lys Ser
165 170 175

Thr Thr Lys Leu Cys Ser Asn Arg Leu Lys Lys Gly Thr Arg Phe Leu
180 185 190

Leu Ile Cys His Trp Cys Pro Leu Arg Glu Leu Pro Arg Ser Ser Thr

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