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(54)

Liquid bread improver, method for providing thereof and method for providing bakery foods.

(57)

The present invention relates to a liquid bread improver suitable for preparing bakery foods comprising sugar, proteins, salt, enzymes, a bread improvement agent and water, wherein the salt is present in 5 to 20 wt.-% of the liquid bread improver, wherein the liquid bread improver has a water activity of lower than 0.9.

NL C 2009065

Dit octrooi is verleend ongeacht het bijgevoegde resultaat van het onderzoek naar de stand van de techniek en schriftelijke opinie. Het octrooischrift komt overeen met de oorspronkelijk ingediende stukken.

**LIQUID BREAD IMPROVER, METHOD FOR PROVIDING THEREOF AND
METHOD FOR PROVIDING BAKERY FOODS**

Description

5 The present invention relates to a liquid bread improver. More specifically, the present invention relates to a liquid bread improver which is suitable for preparing bakery foods. According to a further aspect, the present invention relates to a method for providing a liquid bread
10 improver suitable for preparing bakery foods. According to yet a further aspect the present invention relates to a method for providing a bakery food product.

 Bread improvers are common ingredients in bakery products such as bread and are used to enhance the product
15 quality and to improve or facilitate the production process. Usually bread improvers contain enzymes and emulsifiers and may have different physical forms like powders, blocks or liquids.

 Liquid bread improvers are advantageous since they
20 can be dosed automatically, which is useful in for example industrial scale bakeries. Conventionally, liquid bread improvers are based on oil components. However, the oil used in current liquid bread improvers makes the product expensive and this will be more expensive in the future.
25 Additionally, oil production has a negative environmental impact. Further, the physical structure of an oil-based bread improver is made of a network of fat crystals which makes it vulnerable to break at high temperatures. The use of oil for bread improvers has also a drawback in view of
30 the production process since it requires substantial energy for heating up the oil and subsequent cooling for forming the fat crystal network.

Given the above drawbacks of oil-based bread improvers, there have been studies in the past for liquid bread improvers in which no fat component is present. However, a good working liquid bread improver that could
5 replace oil based bread improvers has not yet been identified. This is, amongst others, due to the following reasons.

First of all, the baking performances of some conventional non oil-based liquid bread improvers in terms
10 of for example baking time are not sufficient for industrial scale bakery.

Secondly, the shelf life of liquid bread improvers in which no fat is present is generally poor. These bread improvers could only be stored for a couple of days, which
15 is a drawback in bakery applications since sometimes only small amounts of bread improver are used in the bakery. An important aspect of shelf life is that the enzymes present in the bread improvers remain active. Further, the physical stability of the liquid bread improver is important. For
20 that reason emulsifiers are regularly used, which is a disadvantage since food products without E-numbers are preferred (eg. E-numbers E400-E499), to provide so called 'clean label' ingredients.

Thirdly, the handling of bread improvers is
25 important. For example, bread improvers are regularly used in automated controlled bakery processes, wherein the bread improver needs to be of a viscosity that allows the bread improver to be pumped and mixed efficiently.

Considering the above disadvantages, there is a
30 need in the art for a liquid bread improver which can be used as conventional oil based bread improvers, however which liquid bread improver is not oil-based.

Therefore, it is an object of the present invention, amongst other objects, to provide a liquid bread improver suitable for preparing bakery foods, such as bread and soft rolls.

5 More specifically, the present invention relates according to a first aspect to a liquid bread improver suitable for preparing bakery foods comprising sugar, proteins, salt, malt flours, enzymes, a bread improvement agent and water, wherein the salt is present in 5 to 20 wt.%
10 of the liquid bread improver and/or wherein the liquid bread improver has a water activity of lower than 0.9. Preferably, the content of the present salt in the liquid bread improver is the maximum possible amount without precipitation of salt.

15 'Liquid bread improver' as used in the present context encompasses bread improvers having a viscosity which allows the liquid bread improver to be processed by a pump or other dosing equipment.

 A 'bread improvement agent' as used in the present
20 context means an agent, or group of agents, which may provide taste, colour and aroma's to the bread to be baked. The composition of the bread improve agent may be adapted to the type of bread to be baked, since each type of bread has its own characteristics. Preferably the present bread
25 improvement agent is a powder, i.e. a bread improvement powder.

 'wt. %' as used in the present context means weight percentage of the indicated component as the total weight of the liquid bread improver, unless otherwise
30 indicated.

 The present invention provides a liquid bread improver which has substantially no oil components. Further, the present inventors surprisingly found that the present

liquid bread improver is suitable for preparing bakery foods of a quality as good or even better as with oil-based liquid bread improvers. Further, the baking performance of the present liquid bread improver is excellent in terms of
5 handling and labour required. The present liquid bread improver has a viscosity which is less than the viscosity of oil based liquid bread improvers, which permits an easier processing such as pumping.

Another advantage of the present liquid bread
10 improver is that it is stable over longer periods of time. Specifically, liquid bread improvers according to the present invention remain physical stable for periods of more than 4 months while the enzymes present remain their activity. This is of utmost importance for the liquid bread
15 improver in order it can be used for preparing bakery foods. In addition it was found that the medium of the liquid bread improver could stabilise micro-organisms (yeast, lactic acid and other sour dough bacteria) during this shelf life.

Preferably the present liquid bread improver has a
20 water activity of lower than 0.9, such as lower than 0.85 or lower than 0.8. More preferably the water activity is in the range of 0.7 to 0.85, more preferably in the range of 0.75 to 0.77. An advantage of the present water activity is that the liquid bread improver is microbial stable for longer
25 periods of time.

According to a preferred embodiment, the present liquid bread improver comprises:

- (i) 15 to 35 wt. % sugar;
- (ii) 10 to 30 wt. % proteins or protein
30 containing flours;
- (iii) 10 to 15 wt. % salt;
- (iv) 1 to 5 wt. % enzymes;

(v) 1 to 10 wt. % bread improvement agent;
and

(vi) water up to 100 wt %.

Liquid bread improvers according to the above recipe can
5 conveniently be used for baking of several kinds of bread
such as white bread, brown bread, soft rolls, etc, wherein
the handling of the present bread improver is excellent and
the liquid bread improver can be stored for at least several
months. The present liquid bread improver can be adjusted
10 for specific types of bread by adjusting the bread
improvement agent. Further, the present liquid bread
improver enables a high uptake of powder, such as sugar,
protein, various flour types, enzymes, micro-organisms,
bread improvement agent, while the liquid bread improver
15 remains a homogenous liquid, having a viscosity which allows
the liquid bread improver to be pumped and dosed
automatically. Preferably, the content of the present powder
is more (in weigh percentages) than the water.

According to yet another preferred embodiment, the
20 present sugar is dextrose. Preferably, the sugar or dextrose
is present in 20 to 25 wt. % of the liquid bread improver.
An advantage of liquid bread improvers having dextrose is
that no further thickeners or stabilizers are added, while
dextrose is a common ingredient in bakery foods.

25 According to another embodiment, the present
proteins are proteins derived from milk, soy, peas and
beans. However, more preferably the present proteins are
gluten and/or the proteins or gluten is present in 15 to 25
wt. % of the liquid bread improver. An advantage of using
30 gluten as proteins is that gluten conveniently can be used
in a liquid bread improver since gluten is also present in
dough. Further, by using gluten, the present liquid bread
improver does not comprise emulsifiers which are not

necessary ingredients for the bakery food. Surprisingly, the inventors found that present liquid bread improver comprising gluten remains at a viscosity which allows the bread improver to be pumped. Thus, although gluten together
5 with water are used, the gluten did not form a rubber like pasty texture.

Preferably, the present liquid bread improver does not comprise food grade emulsifiers such as lecithin, monoglycerides, or other food emulsifiers such as calcium-
10 sodium stearyl lactylate (CSL) or diacetyl tartaric acid ester of mono-and diglycerides (DATEM). Further, in a preferred embodiment, the present liquid bread improver does not comprise glycerol, acid or sugar syrup, ingredients which are normally added to non oil liquid bread improvers
15 as a processing aid to reduce the water activity.

According to a preferred embodiment, the present salt is a sodium salt, potassium salt, ammonium salt or combinations thereof. More preferably the present salt is sodium chloride, potassium chloride, ammonium chloride or
20 combinations thereof. The addition of salt to the present liquid bread improver is advantageous since it may adjust the water activity to a desired level in order to minimize microbial growth. Further, salt is a common ingredient in bread, making it an appropriate ingredient for the liquid
25 bread improver.

According to yet another preferred embodiment, the present enzymes are enzymes suitable for use in a bread improver. More preferably, the enzymes are chosen from the group consisting of amylase, glucose oxidases, lipase,
30 protease, hemicellulase and combinations thereof. Preferably, the present enzymes are dissolved in the present liquid bread improver.

According to a preferred embodiment, the present bread improvement agent is a bread improvement agent suitable for the preparation of white bread, wholemeal bread or other bakery products. More preferably, the present bread improvement agent comprises dairy products, soy flour, malt extracts, malt flour, yeast. Further, the bread improvement agent may also comprise lecithin, starch, bean flour, locust bean gum, carboxymethylcellulose, gelatine guar gum, xanthan gum or combinations thereof.

Given the advantageous properties of the present liquid bread improver, the present invention relates according to another aspect to a method for providing a liquid bread improver suitable for preparing bakery foods, comprising the steps of:

- (i) dissolving a salt in water to provide salted water;
- (ii) adding to the salted water while mixing a sugar, a protein, enzymes and a bread improvement agent until a homogeneous mixture is obtained;

thereby providing a liquid bread improver having a water activity of lower than 0.9 and/or wherein the salt is present in 5 to 20 wt.% of the liquid bread improver. The present method is advantageous since the ingredients of the liquid bread improver can simply be mixed until a homogenous mixture is obtained, without necessary heating and cooling steps. Thus, the present method is effective both in production costs as in the use of natural resources. Generally, mixing for a time period of at least 5 minutes would be sufficient to provide a homogenous mixture. Preferably, dissolving salt in water comprises adding salt to the water until the saturation point is reached, so the

maximum amount of salt is added without precipitation of salt.

Preferably, the present method provides the liquid bread improver suitable for preparing bakery foods according to the present invention.

In a preferred embodiment the present sugar, proteins, salt, enzymes and/or bread improvement agent added to water are in powder form. However these components can be used dissolved or dispersed in water as long as the water activity stays below 0.9.

Given the advantageous properties of the present liquid bread improver, the present invention relates according to another aspect to a method for providing a bakery food product, wherein the liquid bread improver according to the present invention is used. Preferably, the present liquid bread improver is mixed with flour and other required components to a dough, proofed and subsequently the provided mixture is baked thereby providing the bakery food product. Preferably the present bakery food product is a tin bread such as white bread or wholemeal bread or the present bakery food product is a soft roll such as white or brown soft rolls or crispy rolls.

Further, the present invention relates to the bakery food product such as bread obtainable by the present method. The bakery food product provided by the present method has advantageous properties such as a fine texture and slow aging.

The principles of the present invention will be further detailed in the example showing preferred embodiments of the present invention.

Example

Preparation of 5 liter liquid bread improver for baking wholemeal bread.

5 Ingredients

Ingredients	Wt. %
Water	40
Dextrose	22
Gluten	20
NaCl	13
Amylase & hemicelluloses (powder)	2
Bread improvement powder (combination of whey powder, malt, colourings, aroma, flour)	3

Process

The NaCl was added to the water under stirring.

- 10 Subsequently, the gluten and dextrose were added to the salted water under stirring, followed by adding enzymes and bread improvement powder under stirring. Finally the obtained mixture was stirred for five minutes to obtain a homogenous mixture, wherein the gluten did not form a rubber like texture. The water activity (A_w) of the mixture was 0.77.

Storage

- 20 The homogenous liquid bread improver was stored for 4 months in a plastic drum at room temperature. After 4 months the stored liquid bread improver was analyzed on its physical condition and on the activity of the enzymes. The liquid bread improver had the same physical condition after

4 months as after preparation, without being a rubber like texture or without separation of the various phases.

Further, the enzyme activity was substantially the same as after preparation. Accordingly, the liquid bread improver
5 was both physical stable as enzymatic stable.

Test for baking wholemeal tin bread.

The liquid bread improver stored for 4 months was used for baking wholemeal bread. The liquid bread improver was mixed with dough for 8 min (first 3 min slow, then 5 min
10 fast) followed by rounding the dough. After a first proofing of 30 min. at 32 °C the dough was moulded and proofed for 70 min at 32 °C. Subsequently the moulded and proofed dough was baked at 235 °C for 40 min, followed by cooling and slicing.

15 Results

The sliced bread was analyzed on texture, volume, appearance and taste, which were not different from bread baked with conventional liquid bread improvers or improvers on a powder base. Thus, the liquid bread improver allowed
20 the above baking process to provide a wholemeal bread of good quality.

Test for baking white buns

A bread improver was prepared according to the recipe above, however no malt was present in the bread
25 improvement powder. White buns were prepared by mixing dough with bread improver for 8 min (first 3 min slow, then 5 min fast) followed by a first proofing of 10 min. at 32 °C. Subsequently, the mixture was divided, rounded and proofed for another 70 min. at 32 °C. Finally, the proofed dough was
30 baked for 9 min. at 260 °C.

The white buns prepared were analyzed on texture, volume, appearance and taste, which were not different from buns baked with conventional liquid bread improvers or

improvers on a powder base. Thus, the liquid bread improver allowed the above baking process to provide white buns of good quality.

CLAUSES

1. Liquid bread improver suitable for preparing
5 bakery foods comprising sugar, proteins, salt, enzymes, a
bread improvement agent and water, wherein the salt is
present in 5 to 20 wt.% of the liquid bread improver,
wherein the liquid bread improver has a water activity of
lower than 0.9.

10

2. Liquid bread improver according to 1,
comprising:

- (i) 15 to 35 wt. % sugar;
- (ii) 10 to 30 wt. % proteins;
- 15 (iii) 10 to 15 wt. % salt;
- (iv) 1 to 5 wt % enzymes;
- (v) 1 to 10 wt. % bread improvement agent;
- and
- (vi) water up to 100 wt. %.

20

3. Liquid bread improver according to 1 or 2,
wherein the sugar is dextrose, wherein the dextrose is
present in 20 to 25 wt. % of the liquid bread improver.

25 4. Liquid bread improver according to any of 1 to
3, wherein the proteins is gluten, wherein the gluten is
present in 15 to 25 wt. % of the liquid bread improver.

5. Liquid bread improver according to any of 1 to
30 4, wherein the salt is a sodium salt, potassium salt,
ammonium salt or combinations thereof.

6. Liquid bread improver according to any of 1 to 5, wherein the enzymes are chosen from the group consisting of amylase, glucose oxidases, lipase, protease, hemicellulase and combinations thereof.

5

7. Liquid bread improver according to any of 1 to 6, wherein the bread improvement agent comprises dairy products, wheat flour, soy flour, malt extracts, malt flour, yeast, lactobacilli, starch, bean flour, locust bean gum, carboxymethylcellulose, gelatine guar gum, xanthan gum or combinations thereof.

10

8. Method for providing a liquid bread improver suitable for preparing bakery foods, comprising the steps of:

15

- (i) dissolving a salt in water to provide salted water;
- (ii) adding to the salted water while mixing a sugar, a protein, enzymes and a bread improvement agent until a homogeneous mixture is obtained;

20

thereby providing a liquid bread improver having a water activity of lower than 0.9, wherein the salt is present in 5 to 20 wt.% of the liquid bread improver.

25

9. Method according to 8, wherein a liquid bread improver according to any of the claims 1 to 7 is provided.

10. Method for providing a bakery food product, wherein the liquid bread improver according to any of 1 to 7 is used.

30

11. Method according to 10, wherein the liquid bread improver according to any of 1 to 7 is mixed with dough and subsequently the provided mixture is baked thereby providing the bakery food product.

5

12. Bakery food product, obtainable by the method according to 10 or 11.

CONCLUSIES

1. Vloeibaar broodverbetermiddel geschikt voor het bereiden van bakkerij voedingsproducten omvattende suiker, eiwitten, zout, enzymen, een broodverbeterstof en water, waarbij het zout aanwezig is in 5 tot en met 20 gew. % van het vloeibare broodverbetermiddel en waarbij het vloeibare broodverbetermiddel een water activiteit heeft van lager dan 0,9.

2. Vloeibaar broodverbetermiddel volgens conclusie 1, omvattende:

- (i) 15 - 35 gew. % suiker;
- (ii) 10 - 30 gew. % eiwitten;
- (iii) 10 - 15 gew. % zout;
- (iv) 1 - 5 gew. % enzymen;
- (v) 1 - 10 gew.% broodverbeterstof; en
- (vi) water tot aan 100 gew. %.

3. Vloeibaar broodverbetermiddel volgens conclusie 1 of conclusie 2, waarbij de suiker dextrose is en waarbij de dextrose aanwezig is in 20 tot en met 25 gew. % van het vloeibare broodverbetermiddel.

4. Vloeibaar broodverbetermiddel volgens een van de conclusies 1 tot en met 3, waarbij de eiwitten gluten zijn, waarbij de gluten aanwezig zijn in 15 tot en met 25 gew. % van het vloeibare broodverbetermiddel.

5. Vloeibaar broodverbetermiddel volgens een van de conclusies 1 tot en met 4, waarbij het zout een natriumzout, een kaliumzout, een ammoniumzout of combinaties daarvan is.

6. Vloeibaar broodverbetermiddel volgens een van de conclusies 1 tot en met 5, waarbij de enzymen zijn gekozen uit de groep die bestaat uit amylase, glucose oxidase, lipase, protease, hemicellulase en combinaties daarvan.

7. Vloeibaar broodverbetermiddel volgens een van de conclusies 1 tot en met 6, waarbij de broodverbeterstof omvat melkproducten, tarwemeel, sojameel, mout extracten, moutmeel, gist, lactobacilli, zetmeel, boonmeel, johannesbroodpitmeel, carboxymethylcellulose, gelatine guarpitmeel, xanthaangon of combinaties daarvan.

8. Werkwijze voor het verschaffen van een vloeibaar broodverbetermiddel welke geschikt is voor het bereiden van bakkerij voedingsproducten, omvattende de stappen van:

- (i) het oplossen van zout in water voor het verschaffen van zout water;
 - (ii) het onder roeren toevoegen aan het zout water van suiker, eiwitten, enzymen en een broodverbeterstof totdat een homogeen mengsel wordt verkregen;
- daarmee verschaffende een vloeibaar broodverbetermiddel met een water activiteit van lager dan 0,9, waarbij het zout aanwezig is in 5 tot en met 20 gew. % van het vloeibare broodverbetermiddel.

9. Werkwijze volgens conclusie 8, waarbij een vloeibaar broodverbetermiddel volgens een van de conclusies 1 tot en met 7 wordt verschaft.

10. Werkwijze voor het verschaffen van een bakkerij voedingsproduct, waarbij het vloeibare broodverbetermiddel volgens een van de conclusies 1 tot en met 7 wordt gebruikt.

5

11. Werkwijze volgens conclusie 10, waarbij het vloeibare broodverbetermiddel volgens een van de conclusies 1 tot en met 7 wordt gemengd met deeg, gevolgd door het bakken van het gemengde deeg voor het verschaffen van een bakkerij voedingsproduct.

10

12. Bakkerij voedingsproducten verkrijgbaar door de werkwijze volgens conclusie 10 of 11.

SAMENWERKINGSVERDRAG (PCT)

RAPPORT BETREFFENDE NIEUWHEIDSONDERZOEK VAN INTERNATIONAAL TYPE

IDENTIFICATIE VAN DE NATIONALE AANVRAGE	KENMERK VAN DE AANVRAGER OF VAN DE GEMACHTIGDE		
	3S/2MU21/6		
Nederlands aanvraag nr.	Indieningsdatum		
2009065	26-06-2012		
	Ingeroepen voorrangsdatum		
Aanvrager (Naam)			
Sonneveld Group B.V.			
Datum van het verzoek voor een onderzoek van internationaal type	Door de Instantie voor Internationaal Onderzoek aan het verzoek voor een onderzoek van internationaal type toegekend nr.		
14-07-2012	SN 58471		
I. CLASSIFICATIE VAN HET ONDERWERP (bij toepassing van verschillende classificaties, alle classificatiesymbolen opgeven)			
Volgens de internationale classificatie (IPC)			
A21D2/02	A21D2/26	A21D2/26	A21D8/04
II. ONDERZOChte GEBIEDEN VAN DE TECHNIEK			
Onderzochte minimumdocumentatie			
Classificatiesysteem	Classificatiesymbolen		
IPC8	A21D		
Onderzochte andere documentatie dan de minimum documentatie, voor zover dergelijke documenten in de onderzochte gebieden zijn opgenomen			
III.	☐ GEEN ONDERZOEK MOGELIJK VOOR BEPAALDE CONCLUSIES (opmerkingen op aanvullingsblad)		
IV.	☐ GEBREK AAN EENHEID (opmerkingen op aanvullingsblad)		

**ONDERZOEKSRAPPORT BETREFFENDE HET
RESULTAAT VAN HET ONDERZOEK NAAR DE STAND
VAN DE TECHNIEK VAN HET INTERNATIONALE TYPE**

Nummer van het verzoek om een onderzoek naar
de stand van de techniek
NL 2009065

A. CLASSIFICATIE VAN HET ONDERWERP

INV. A21D2/02 A21D2/18 A21D2/26 A21D8/04
ADD.

Volgens de Internationale Classificatie van octrooien (IPC) of zowel volgens de nationale classificatie als volgens de IPC.

B. ONDERZOCHE GEBIEDEN VAN DE TECHNIEK

Onderzochte minimum documentatie (classificatie gevolgd door classificatiesymbolen)
A21D

Onderzochte andere documentatie dan de minimum documentatie, voor dergelijke documenten, voor zover dergelijke documenten in de onderzochte gebieden zijn opgenomen

Tijdens het onderzoek geraadpleegde elektronische gegevensbestanden (naam van de gegevensbestanden en, waar uitvoerbaar, gebruikte trefwoorden)

EP0-Internal, BIOSIS, FSTA, WPI Data

C. VAN BELANG GEACHTE DOCUMENTEN

Categorie °	Geciteerde documenten, eventueel met aanduiding van speciaal van belang zijnde passages	Van belang voor conclusie nr.
X	WO 2008/078107 A1 (CEREFORM LTD [GB]; WHITEHURST ROBERT [GB]; GREEN MATTHEW [GB]) 3 juli 2008 (2008-07-03) * bladzijde 8, regel 6 - regel 8; voorbeelden 1-4 *	1-12
A	EP 1 472 930 A1 (IREKS GMBH [DE]) 3 november 2004 (2004-11-03) * alinea [0024] *	1-12
A	WO 96/13980 A1 (BURNS PHILP FOOD HOLDINGS PTY [AU]; WILLIAMS KENNETH CHARLES [AU]; MOB) 17 mei 1996 (1996-05-17) * conclusie 1 *	1-12

☐ Verdere documenten worden vermeld in het vervolg van vak C.

☒ Leden van dezelfde octrooifamilie zijn vermeld in een bijlage

° Speciale categorieën van aangehaalde documenten

"A" niet tot de categorie X of Y behorende literatuur die de stand van de techniek beschrijft

"D" in de octrooiaanvraag vermeld

"E" eerdere octrooi(aanvraag), gepubliceerd op of na de indieningsdatum, waarin dezelfde uitvinding wordt beschreven

"L" om andere redenen vermelde literatuur

"O" niet-schriftelijke stand van de techniek

"P" tussen de voorrangsdatum en de indieningsdatum gepubliceerde literatuur

"T" na de indieningsdatum of de voorrangsdatum gepubliceerde literatuur die niet bezwarend is voor de octrooiaanvraag, maar wordt vermeld ter verheldering van de theorie of het principe dat ten grondslag ligt aan de uitvinding

"X" de conclusie wordt als niet nieuw of niet inventief beschouwd ten opzichte van deze literatuur

"Y" de conclusie wordt als niet inventief beschouwd ten opzichte van de combinatie van deze literatuur met andere geciteerde literatuur van dezelfde categorie, waarbij de combinatie voor de vakman voor de hand liggend wordt geacht

"&" lid van dezelfde octrooifamilie of overeenkomstige octrooipublicatie

Datum waarop het onderzoek naar de stand van de techniek van internationaal type werd voltooid

13 februari 2013

Verzenddatum van het rapport van het onderzoek naar de stand van de techniek van internationaal type

Naam en adres van de instantie

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De bevoegde ambtenaar

Merk1, Bernhard

**ONDERZOEKSRAPPORT BETREFFENDE HET
RESULTAAT VAN HET ONDERZOEK NAAR DE STAND
VAN DE TECHNIEK VAN HET INTERNATIONALE TYPE**

Informatie over leden van dezelfde octrooifamilie

Nummer van het verzoek om een onderzoek naar
de stand van de techniek

NL 2009065

In het rapport genoemd octrooigescrift	Datum van publicatie	Overeenkomend(e) geschrift(en)	Datum van publicatie
WO 2008078107	A1	03-07-2008	AT 475316 T 15-08-2010
		AU 2007337835 A1	03-07-2008
		CA 2672557 A1	03-07-2008
		CN 101588723 A	25-11-2009
		DK 2101588 T3	25-10-2010
		EP 2101588 A1	23-09-2009
		ES 2347298 T3	27-10-2010
		US 2010028491 A1	04-02-2010
		WO 2008078107 A1	03-07-2008
		ZA 200904218 A	28-04-2010

EP 1472930	A1	03-11-2004	AT 319315 T 15-03-2006
		DE 10318359 A1	11-11-2004
		DK 1472930 T3	10-07-2006
		EP 1472930 A1	03-11-2004

WO 9613980	A1	17-05-1996	JP H10509310 A 14-09-1998
		TR 960467 A2	21-07-1996
		WO 9613980 A1	17-05-1996

WRITTEN OPINION

File No. SN58471	Filing date (day/month/year) 26.06.2012	Priority date (day/month/year)	Application No. NL2009065
International Patent Classification (IPC) INV. A21D2/02 A21D2/18 A21D2/26 A21D8/04			
Applicant Sonneveld Group B.V.			

This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the application
- ☐ Box No. VIII Certain observations on the application

	Examiner Merkel, Bernhard
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WRITTEN OPINION

Application number

NL2009065

Box No. I Basis of this opinion

1. This opinion has been established on the basis of the latest set of claims filed before the start of the search.
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - ☐ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material:
 - ☐ on paper
 - ☐ in electronic form
 - c. time of filing/furnishing:
 - ☐ contained in the application as filed.
 - ☐ filed together with the application in electronic form.
 - ☐ furnished subsequently for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

Box No. V Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty	Yes: Claims	1-12
	No: Claims	
Inventive step	Yes: Claims	
	No: Claims	1-12
Industrial applicability	Yes: Claims	1-12
	No: Claims	

2. Citations and explanations

see separate sheet

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

D1 WO 2008/078107 A1 (CEREFORM LTD [GB]; WHITEHURST ROBERT [GB]; GREEN MATTHEW [GB]) 3 juli 2008 (2008-07-03)

The present application does not meet the criteria of patentability, because the subject-matter of claims 1-12 does not involve an inventive step.

D1 is regarded as being the prior art closest to the subject-matter of claims 1 and 8 and discloses in examples 1-4 a liquid bread improver comprising among others 50% water, 17.6% salt, 20% sugar, 0.6 % xanthan gum and enzymes. Claims 1 and 8 differ in that additionally proteins have to be present and in that the functional feature of a water activity of lower than 0.9 is defined. The subject-matter of claims 1 and 8 as well as of the dependent claims 2-7, 9-11 and the bakery product according to claim 12 preparable with the aid of the claimed bread improver is regarded to be new.

The problem to be solved by the present invention may be regarded as the provision of a stable liquid bread improver which is not oil-based and which does not use usual emulsifiers. The solution proposed in claims 1 and 8 of the present application cannot be considered as involving an inventive step for the following reasons:

No technical effect has been disclosed for the presence of proteins which is a common ingredient in bread. Therefore the proteins cannot be regarded as a basis for inventive step. Further the water activity is an unusual parameter to define a bread improver. The water activity of the compositions disclosed in D1 is not known.

However, due to the high amount of salt, sugar and xanthan gum in the examples 1-4 it has to be assumed that said examples show an equal or comparable water activity. The more so, as the skilled person had a hint from D1, page 8, lines 6-9 that the sugar and the salt present in the compositions provide sufficient stability.

The same reasoning applies, *mutatis mutandis*, to the subject-matter of the corresponding independent claim 2-7, 9-11 and the product of claim 12, which therefore are also considered not inventive.