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54 **Method for prolonging the longevity of cut flowers.**

57 Described is a method to provide an aqueous nutrient medium for keeping cut flowers with elongated freshness, as well as a method to confer a prolonged longevity to one or more cut flowers, comprising the step of allowing the said one or more cut flowers, with the cut surface of the stem thereof, to be in contact with the said aqueous nutrient medium. Further, a composition of cut flowers having prolonged longevity is described.

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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.

Title: Method for prolonging the longevity of cut flowers

Description

The invention relates to a method for prolonging the longevity of one or
5 more first cut flowers, to a composition of cut flowers having prolonged longevity,
and to the use of one or more cut flowers of the genus *Kalanchoe* for prolonging the
longevity of one or more cut flowers belonging to the genus *Kalanchoe* and/or cut
flower of a genus different from *Kalanchoe* or decorative greenery of the genus
Kalanchoe and/or decorative greenery of a genus different from *Kalanchoe*.

10 A well-known problem of cut flowers is the relatively short longevity.
This phenomenon starts at the moment the stem of the flowers are cut. For florists,
this problem is serious, as a significant portion of the flowers wither in the period that
the flowers are offered for sale. Also customers are facing this problem, as many cut
flowers only hold for a limited number of days. Both the florist and the customer
15 would benefit significantly from elongation of the longevity of cut flowers.

Both florist and customers usually keep their cut flowers in an aqueous
liquid nutrient medium, such as tap water or water enriched with plant nutrients. The
flowers can be kept e.g. in a vase or a bucket, or any other suitable container that
holds aqueous nutrient medium and allows the stems of the cut flowers to be in
20 contact with the aqueous medium, in particular allowing the cutting edge of the
stems to be submersed in the aqueous nutrient medium.

On the other hand, succulents as *Kalanchoe* are believed not to be
suitable as cut flowers. Natural habitats for succulents are very dry areas.
Succulents therefor do not need much water, and in contrast, succulent tend to
25 rather wilt and die when too much water is given. When cut flowers are in continuous
contact with an aqueous nutrient medium, the said flowers are saturated with the
medium. Such saturation would be detrimental for succulents. When used as cut
flowers at all, succulents are generally kept dry, i.e. without being in contact with an
aqueous nutrient medium. Plants of the genus *Kalanchoe* are succulents. As a
30 potted plant, care should indeed be taken not to water *Kalanchoe* too much, resulting
in wilting and eventual death of the plant, in particular in winter when the days
become short. Nevertheless, cut flowers of the genus *Kalanchoe* are recently
described, indeed to be kept dry, see e.g. [http://www.newplantsandflowers.com/cut-
flower-kalanchoes-that-can-stay-weeks-without-water/](http://www.newplantsandflowers.com/cut-flower-kalanchoes-that-can-stay-weeks-without-water/).

It has now been surprisingly found that cut flowers belonging to the genus *Kalanchoe* can very well be kept in an aqueous nutrient medium, such as tap water, resulting even in a prolonged longevity as compared to when kept in the absence of an aqueous nutrient medium. Even more surprisingly, cut flowers
5 belonging to the genus *Kalanchoe* confer elongated freshness to an aqueous nutrient medium for keeping cut flowers, even in the presence of other cut flowers. The medium stay clearer for a longer period. Such medium with elongated freshness surprisingly confers, to cut flowers kept therein, i.e. the cut surfaces of the stem thereof being submerged in the said nutrient medium, a prolonged longevity.
10 Therefore, cut flowers belonging to the genus *Kalanchoe* have the ability to confer, not only to themselves, but also to other cut flowers, a prolonged longevity by allowing the cut surface of the stem of said *Kalanchoe* and, if desired, of such other cut flowers, to be in contact with the aqueous nutrient medium. The term 'aqueous nutrient medium' is meant to encompass all known media, intended for keeping cut
15 flowers by contacting the cut stem of the said cut flowers with the said media. In particular, such media are liquid, such as tap water, optionally further enriched with nutrients as known in the art (such as marketed by Chrysal, Naarden, Netherlands). However, the aqueous media can also be in the form of a gel, or be held in another matrix such as (artificial) cotton wool, soaked with liquid nutrient medium.

20 To this end, the invention provides a method to provide an aqueous nutrient medium for keeping cut flowers with extended freshness, comprising the step of allowing one or more cut flowers belonging to the genus *Kalanchoe*, with the cut surface of the stem thereof, to be in contact with the aqueous nutrient medium. It is surprisingly observed that cut flowers of the genus *Kalanchoe*, when, against all
25 prejudices, are kept in an aqueous nutrient medium, said medium has an extended freshness, and tends to foul significantly later in time as compared to aqueous nutrient media wherein other cut flowers are kept, in the absence of *Kalanchoe*. Furthermore, the cut flowers belonging to the genus *Kalanchoe* have a better performance when kept in an aqueous nutrient medium as compared to keeping
30 under dry conditions as prescribed in the art.

Even more surprisingly, cut flowers seem to stay longer fresh when kept in an aqueous medium wherein one or more cut flowers of the genus *Kalanchoe* are kept or have been kept. Therefore, the invention also relates to a method to confer a prolonged longevity to one or more cut flowers, comprising the step of

allowing the said one or more cut flowers, with the cut surface of the stem thereof, to be in contact with the aqueous nutrient medium as provided by the method according to the invention.

Without the intention to be bound by any explanation, it is believed that cut flowers of the genus *Kalanchoe* have an antiseptic effect on the medium wherein they are kept, and may to this end comprise one or more substances that are excreted in the aqueous nutrient medium, which one or more substances are believed to be taken up by the other cut plants, as a result of which these plants obtain the ability to live longer and to wither far later than compared to the situation without a cut flower of the genus *Kalanchoe* being, or having been in contact with the aqueous nutrient medium wherein the said cut flower is held.

The one or more first cut flowers can be any cut flower, suitable to be held in an aqueous growth medium. Such cut flowers can e.g. be of the genus *Rosa*, *Chrysanthemum* (spray or disbud), *Tulipa*, *Lilium*, *Gerbera*, *Cymbidium*, *Freesia*, *Eustoma*, *Hydrangea*, *Hippeastrum*, *Alstromeria*, *Paeonia*, *Anthurium*, *Zantedeschia*, *Dianthus*, *Gypsophila*, *Helianthus*, *Hypericum*, *Limonium*, *Hyacinthus*, *Ranunculus*, *Iris*, *Gladiolus*, *Solidago*, *Aster* and decorative greenery. It has been found that in the majority of cases, if not in all, the longevity is prolonged when the aqueous medium also contains, or contained, one or more cut flowers or decorative greenery belonging to the genus *Kalanchoe*. Therefore the term 'cut flower' also encompasses decorative greenery of which the stem is cut and being placed in contact with the aqueous nutrient medium.

Examples of suitable species of the genus *Kalanchoe* are e.g. *K. ambolensis*, *K. aromatica*, *K. blossfeldiana*, *K. campanulata*, *K. citrina*, *K. coccinea*, *K. crundallii*, *K. daigremontiana*, *K. decumbens*, *K. dixoniana*, *K. faustii*, *K. fedtschenkoi*, *K. figueredoi*, *K. flammea*, *K. gastonis-bonnierii*, *K. glaucescens*, *K. gracilipes*, *K. grandiflora*, *K. guignardii*, *K. humilis*, *K. jongmansii*, *K. laciniata*, *K. latisepala*, *K. laxiflora*, *K. lobata*, *K. longiflora*, *K. manginii*, *K. marmorata*, *K. nyikae*, *K. obtuse*, *K. paniculata*, *K. pinnata*, *K. porphyrocalyx*, *K. prittwitzii*, *K. pubescens*, *K. pumila*, *K. rauhii*, *K. rotundifolia*, *K. scapigera*, *K. schumacherii*, *K. spathulata*, *K. streptantha*, *K. synsepala*, *K. tomentosa*, *K. thyrsoiflora*, *K. tubiflora*, *K. uniflora*, and interspecific hybrids between species within the genus *Kalanchoe* and progeny thereof, e.g. *Kalanchoe* interspecific hybrids 'Adorable White Meadow', 'African Delight'(CVPO2012/0055), 'Fancy White Meadow', 'Delicate White Meadow',

'Sophisticated Pink Meadow', 'Amazing Pink Meadow' (CVPO 2013/1549), 'Adorable
 Pink Meadow' (CVPO 2013/2836), 'Blossom Pink Meadow', 'Romantic Pink
 Meadow', 'Romantic Orange Meadow', 'Feminine Pink Meadow', 'Feminine Orange
 Meadow', 'Spring Yellow', 'Warm Yellow Meadow', '2011-1274', Charming Purple
 5 Meadow'(CVPO 2013/2853), 'Surprising Desert'(CVPO 2013/0256), 'Shiny Red
 Meadow', 'Funky Red Meadow', 'Baroque Rose Meadow', 'Jazzy White Meadow',
 'Loveable Pink Meadow', 'Shiny Coral', 'Smooth Yellow Meadow', 'Cheerful Orange
 Meadow', 'Dreaming Pink Meadow', 'Frozen White Meadow', 'Sugar Red', 'Tropical
 Parfait', '2005-0891', '2005-2693', '2011-5028', 2010-5011, 'Dreaming Pink', '2008-
 10 5200', '2012-5046', Yellow African', 2005-1333', 2009-5233', 5002-0127', '2004-
 4002', 2004-4012', '2008-5090', '2010-5110', 2010-5060', 2006-0013' and 'Frozen
 White'. Especially varieties that have a mid-size or large stem, i.e. having a stem
 length of at least 20 cm, preferably at least 35 cm, more preferably at least 45 cm
 and up to 60 cm or even more, with sufficient stem strength are particularly suitable
 15 as cut flowers, such as *Kalanchoe* interspecific hybrids 'Adorable White Meadow',
 'Sophisticated Pink Meadow', 'Amazing Pink Meadow', 'Adorable Pink Meadow',
 'Blossom Pink Meadow', 'Feminine Pink Meadow (CVPO 2011/2696)', 'Feminine
 Orange Meadow', MADONNAQ2 (CVPO2013/1038), 'Spring Yellow Meadow', 'Warm
 Yellow Meadow' (CVPO 2013/2835), '2011-1274', Charming Purple Meadow', and *K.*
 20 *humilis* 'Surprising Desert'.

It has been shown that in addition to conferring longevity to other cut
 flowers, the flowers of the genus *Kalanchoe* have a very high longevity themselves,
 of up to at least 4 weeks, preferably 6 - 8 weeks in aqueous nutrient medium,
 whereas in the art *Kalanchoe* cut flowers are kept dry and start to wither and wilt
 25 after 2 - 3 weeks. As indicated, it was shown that when flowers of the genus
Kalanchoe were kept in an aqueous nutrient medium such as tap water, optionally
 enriched with nutrients, it took longer for the said medium to foul.

Preferably, the one or more cut flowers to confer prolonged longevity
 to, belong to a genus different from *Kalanchoe*. Although it is possible for the one
 30 species of the genus *Kalanchoe* to prolong the longevity of other species of the
Kalanchoe genus, the effect is more pronounced and significant when the first cut
 flowers belong to a different genus. E.g. *Kalanchoe* interspecific hybrids 'Adorable
 White Meadow', 'Sophisticated Pink Meadow', 'Amazing Pink Meadow', 'Adorable
 Pink Meadow', 'Blossom Pink Meadow', 'Feminine Pink Meadow', 'Feminine Orange

Meadow', 'MADONNAQ2', 'Spring Yellow Meadow', 'Warm Yellow Meadow', '2011-1274', Charming Purple Meadow', *K. humilis* 'Surprising Desert', have been selected for their longevity and their ability to prolong longevity for cut flowers and decorative greenery of other species and varieties thereof belonging to the *Kalanchoe* genus but in particular to cut flowers and decorative greenery of a genus different from *Kalanchoe*. In particular, the effect is very significant with *Rosa*, *Chrysanthemum* (spray or disbud), *Gerbera*, and decorative greenery, but also in *Tulipa*, *Lilium*, *Cymbidium*, *Freesia*, *Eustoma*, *Hydrangea*, *Hippeastrum*, *Alstromeria*, *Paeonia*, *Anthurium*, *Zantedeschia*, *Dianthus*, *Gypsophila*, *Helianthus*, *Hypericum*, *Limonium*, *Hyacinthus*, *Ranunculus*, *Iris*, *Gladiolus*, and *Solidago*. The one or more different cut flowers preferably have pronounced flowers conferring an attractive appearance to the said flowers. However, it can also be possible that so-called 'decorative greenery' constitutes (a portion of) these cut flowers. These are cut plants, incorporated in e.g. bouquets in particular for the green appearance and e.g. attractive leaf form, and to a much lesser extent for reason of their flowers, if present at all. Herein, however, such cut plants are deemed to be encompassed by the term 'cut flower', although it may be preferred for the majority of the cut flowers to indeed have attractive flowers instead or in addition thereto.

The cut flowers of the genus *Kalanchoe* can be held in the aqueous medium before any other cut flowers, are put in the said aqueous medium. In that case, the said cut flower of the *Kalanchoe* genus should be kept in the said medium long enough to confer to the medium the quality needed to confer prolonged longevity to the other cut flowers envisaged to confer a prolonged longevity to. A period of at least one, but preferably some or more days such as 2, 3, 4, 5, 6 or 7 days is advisable. Such an approach would be advantageous for florists, who can pre-treat the aqueous medium intended to hold other cut flowers than of the *Kalanchoe* genus by allowing cut flowers of the genus *Kalanchoe* to enrich the said aqueous medium resulting in prolonged longevity of the cut flowers that are put in the said medium later, e.g. after the *Kalanchoe* flowers have been removed. These cut flowers will stand longer without withering, enabling the florist to offer the said flowers for sale for a longer period of time. However, the one or more cut flowers belonging to the genus *Kalanchoe* are preferably held in the aqueous medium simultaneously with the one or more other cut flowers.

In an attractive embodiment, the one or more cut flowers comprise a composition of a plurality of cut flowers. It has been found that only a few or even a single cut flower of the genus *Kalanchoe* is capable to confer prolonged longevity to a plurality of other cut flowers, in particular to plants of a different genus. So only the presence of a limited number of *Kalanchoe* flowers in the medium is necessary. So the florist is free to keep a bunch of cut flowers comprising many flowers not belonging to the genus *Kalanchoe*, in presence of only one or a few *Kalanchoe* flowers. However, it can be advantageous from an esthetic point of view to incorporate more flowers of the *Kalanchoe* genus. Preferably, the composition comprises a plurality of cut flowers that belong to different genus, species and/or varieties, which is particularly attractive to the customer.

In a very attractive embodiment, at least one or more cut flowers are arranged in a bouquet. The said bouquet is held in the aqueous medium, either pre-treated with one or more cut flowers belonging to the genus *Kalanchoe*, or in the presence of said cut *Kalanchoe* flowers. Such bouquets have a prolonged longevity as compared to being held in similar aqueous medium wherein no cut flowers of the genus *Kalanchoe* have been held. Attractively, the at least one or more cut flowers belonging to the genus *Kalanchoe* are arranged in the bouquet together with the one or more cut flowers belonging to a genus different from *Kalanchoe*. This results in a mixed bouquet of flowers, that, as such can be a composition of different flowers of different genus, species or varieties as indicated above, mixed with one or more flowers belonging to the genus *Kalanchoe*. By incorporating cut flowers of the genus *Kalanchoe* in a bouquet of other cut flowers or a mix of other flowers, the florist can not only offer a bouquet over a longer time period, but also the customer acquires a bouquet having the quality of prolonged longevity, as the bouquet also comprises one or more flowers of the genus *Kalanchoe*.

In addition to the effect of the cut flowers belonging to the genus *Kalanchoe* on prolonged longevity of cut flowers belonging to species other than *Kalanchoe*, it was noticed that the aqueous nutrient medium, such as tap water or water enriched with plant nutrients, remained fresh and odor free for as long as the stem of the cut flowers belonging to the genus *Kalanchoe* were submerged in the aqueous nutrient medium (up to 8 weeks) and after the cut flowers were removed from the aqueous nutrient medium. It is therefore advantageous not to change the aqueous nutrient medium, in which the basal parts are submerged in order to

maintain as high concentration as possible of the excreted substances from cut flowers belonging to the *Kalanchoe* genus, suppressing undesired microbial activity.

The invention also relates to a composition of cut flowers having prolonged longevity, the composition comprising a combination of one or more cut
5 flowers that belong to a genus different from *Kalanchoe*, and one or more cut flowers, belonging to the genus *Kalanchoe*. As described above, such composition has prolonged longevity as a result of the presence of one or more cut flowers of the genus *Kalanchoe*.

As discussed above, the one or more cut flowers belonging to a genus
10 different from *Kalanchoe*, preferably comprise a plurality of cut flowers belonging to different genus, species and/or varieties. The composition according to the invention thereby may comprise a mixture of different cut flowers, being very attractive for customers, and preferably comprises. The said composition of cut flowers is preferably arranged in a bouquet, and preferably also comprises one or more cut
15 flowers of the genus *Kalanchoe*.

Also, the invention relates to the use of one or more cut flowers of the genus *Kalanchoe* for prolonging the longevity of one or more cut flowers belonging to a genus different from *Kalanchoe*. The one or more cut flowers from the genus *Kalanchoe* are preferably incorporated in a bouquet, the said bouquet comprising the
20 one or more cut flowers belonging to a genus different from *Kalanchoe*. Said one or more cut flowers belonging to a genus different from *Kalanchoe*, preferably comprise a plurality of cut flowers belonging to different genus, species and/or varieties. The bouquet preferably incorporates one or more cut flowers of the genus *Kalanchoe*, as discussed earlier.

25 The invention is now further illustrated by the following figures and examples, wherein figure 1a-f show different bouquets comprising both *Kalanchoe* and cut flowers, including greenery, of other species.

Figure 1A shows a bouquet containing *Kalanchoe* 'Adorable Pink Meadow', and the following greenery: *Eucalyptus*, *Pistacia* and palm leaves.

30 Figure 1B shows a bouquet *Kalanchoe* 'Amazing Pink Meadow', and the following greenery: *Eucalyptus*, *Pistacia* and palm leaves.

Figure 1C shows a bouquet containing *Kalanchoe* 'Amazing Pink Meadow', *Phaelanopsis* and decorative greenery.

Figure 1D shows a bouquet containing *Kalanchoe* 'Adorable Pink Meadow', *Cynara* and decorative greenery.

Figure 1E shows a bouquet containing *Kalanchoe* 'Amazing Pink Meadow', *Rosa*, *Hyacinthus*, *Hypericon*, *Ranunculus* and decorative greenery.

5 Figure 1F shows a bouquet containing *Kalanchoe* 'Amazing Pink Meadow', *Rosa*, *Hyacinthus*, *Gerbera*, *Ranunculus* and decorative greenery.

Figure 1G shows a bouquet containing *Kalanchoe* 'Amazing Pink Meadow', *Rosa*, *Cymbidium* and decorative greenery.

10 Figure 2 shows *Kalanchoe* 'Spring Yellow Meadow' 3 weeks after harvest in top view (A) and in side view (B).

Figure 3 shows the condition of cut flower *Kalanchoe* in combination with *Rosa* (left), *Rosa* (2nd from left), *Kalanchoe* (3rd from left), and water without plant (right) after 7 days in keeping quality room in accordance with example 2 from the side (3A), the top (3B) and in detail (3C). In the detail, the sample of *Rosa* alone is on the left and the sample of *Rosa* in combination with *Kalanchoe* is on the right.

Figure 4 shows the condition of cut flower *Kalanchoe* in combination with *Dianthus* (left), *Dianthus* (2nd from left), *Kalanchoe* (3rd from left), and water without plant (right) after 7 days in keeping quality room in accordance with example 2 from the side.

20 Figure 5 shows the condition of cut flower *Kalanchoe* in combination with *Chrysanthemum* (left), *Chrysanthemum* (2nd from left), *Kalanchoe* (3rd from left), and water without plant (right) after 7 days in keeping quality room in accordance with example 2 from the side.

Figure 6 shows the condition of cut flower *Kalanchoe* in combination with *Gerbera* (left), *Gerbera* (2nd from left), *Kalanchoe* (3rd from left), and water without plant (right) after 7 days in keeping quality room in accordance with example 2 from the side.

Figure 7 shows a bouquet containing *Kalanchoe* 'Adorable Pink Meadow', and the decorative greenery *Pistacia*, 3 weeks after harvesting of the cut flowers and decorative greenery, kept in tap water. Figure 7A is a top view, whereas figure 7B shows the stems of same bouquet. Figure 7C is a close up of the tap water after 3 weeks.

Figure 8A-C shows bouquets containing *Kalanchoe* 'Amazing Pink Meadow' kept for over 5 weeks in a quality room (Temperature: 19°C, Light: 8h/day,

Light intensity: 10 $\mu\text{mol}/\text{m}^2/\text{s}$) in tap water (pH 6,8, EC 0.72 mS/cm) (left panel) or without water (right panel) after 1 (A), 2 (B), and 5 (C) weeks after harvest.

Example 1

5 Viability of *Kalanchoe* in aqueous nutrient medium

Different *Kalanchoe* varieties were harvested by cutting their stems, wrapped in plastic, placed in transport cardboard boxes, and stored for 5 days in darkness at 18 °C to mimic transport. The plants were placed in keeping quality room (Temperature: 19°C, Light: 8h/day, Light intensity: 10 $\mu\text{mol}/\text{m}^2/\text{s}$), the cut stem
10 of the cut flower being submerged in tap water. Evaluation of the cut flower plant height, fading, wilting, stem strength, and ornamental value took place 3 weeks after harvest. Just before the evaluation, the tested varieties were photographed from the top and the side, see figures 2A and 2B, respectively.

As shown in table 1, wherein data concerning plant height (cm), fading
15 (1-5, 1=no fading), wilting (1-5, 1=no wilting), stem strength (1-5, 1=very strong), ornamental value (1-5, 1=highest ornamental value), were measured 3 weeks after excision of the flower stems at the basal part of the *Kalanchoe* plant. At harvest, the values were '1'.

It can be seen that all varieties keep their qualities after being kept in
20 tap water. The tap water remained clear during this period and even longer, see also figure 2B.

25

Table 1

Quality of different Kalanchoe varieties after being kept for 3 weeks in tap water

	Variety	Height	Fading	Wilting	Stem strength	Ornamental value
5	Amazing Pink Meadow	33	3	2	2	2
	2010-7367	40	2	1	2	2
	Warm Yellow	40	3	2	1	2
	2011-0036	34	3	2	2	3
	Spring Yellow Meadow	42	1	1	1	1
10	2009-0377	43	2	2	2	2
	2009-0938	32	1	1	1	1
	2010-2541	35	2	1	1	2
	2010-7027	45	2	3	1	3
	2010-0209	36	2	2	2	2
15	2008-4048	37	2	2	1	2
	MADONNAQ2	35	1	1	1	1
	Amazing Pink Meadow	54	2	1	1	1
	Dreaming Pink	42	1	2	1	1
	Adorable Pink Meadow	43	1	1	1	1
	Lovable Pink Meadow	41	1	1	2	1
20	2009-0192	39	1	1	1	1
	2009-1161	35	1	1	2	1
	2008-6037	42	2	2	1	2
	Vintage Pink Meadow	44	1	2	1	1
	2010-0792	44	1	2	1	1
	2009-0701	36	1	3	1	2
25	2011-2200	39	1	1	1	1
	2011-2187	43	1	1	1	1
	2010-7099	46	1	1	2	1
	2010-6038	35	2	1	3	2
	2010-6013	35	1	1	3	2
30	2010-7018	42	1	3	1	3
	2009-0219	36	1	1	1	1
	2010-6031	35	2	1	2	2

Example 2

Effect of *Kalanchoe* on freshness of nutrient medium and longevity of other cut flowers – single flower test

Cut flowers *Rosa*, *Dianthus*, *Chrysanthemum* and *Gerbera*, alone or together with a cut flower of *Kalanchoe* 'Amazing Pink Meadow' were kept for 7 days in keeping quality room (Temperature: 19°C, Light: 8h/day, Light intensity: 10 $\mu\text{mol}/\text{m}^2/\text{s}$) in 28.5 ml tap water (pH 6,8, EC 0.72 mS/cm), 1 flower stem per cylinder glass for the test of individual species or together with a *Kalanchoe* flower stem. Water consumption was measured. Light transmission was measured in samples of 5 ml of the tap water of the flowers and compared to tap water stored in similar vial under same conditions for 7 days. This was done at 340nm using a Spectroquant SC118, Merck, (Method 242).

Seven days after start of the experiment the plants were evaluated for fading (1-5, 1=no fading), wilting (1-5, 1=no wilting), ornamental value (1-5, 1=highest ornamental value), and water consumption (ml), see table 2.

In *Rosa* and *Dianthus* there was a slight positive effect of combining *Rosa* with *Kalanchoe* and *Dianthus* with *Kalanchoe* on the fading evaluation. In *Chrysanthemum* and *Gerbera* no effect was found after 7 days.

In *Rosa* there was a positive effect of combining *Rosa* with *Kalanchoe* on the wilting evaluation.

Table 2
Effect of *Kalanchoe* on longevity and medium freshness

	Fading		Wilting		Ornamental value		Water consumption		Transmission	
		*		*		*	average (n=4)	s.e. (n=4)	average (n=4)	s.e. (n=4)
Kalanchoe 'Amazing Pink Meadow'	1,3	-	1	-	1,1	-	3,4	0,0	98,1	2,8
Roses	2	-	4	-	4	-	11,6	0,6	58,7	3,4
Kalanchoe and Roses*	1,3	1,3	1	2	1,1	2	16,6	0,2	93,4	1,3
Dianthus	1,5	-	1	-	1,7	-	6,3	0,1	86,9	4,1
Kalanchoe and Dianthus*	1,3	1,4	1	1	1,1	1,3	9,2	0,1	95,8	0,6
Chrysanthemum	1,2	-	1	-	2,2	-	15,0	0,1	15,7	3,8
Kalanchoe and Chrysanthemum*	1,3	1,2	1	1	1,1	1,5	18,5	0,1	35,8	8,8
Gerbera	1	-	1	-	1,5	-	6,3	0,1	64,9	0,3
Kalanchoe and Gerbera*	1,3	1	1	1	1,1	1,1	11,9	0,1	72,0	1,9
Water	-	-	-	-	-	-	1,4	0,0	97,8	0,9
Water (start)	-	-	-	-	-	-	0	0	100	0

The ornamental value of all species tested was improved by combining Rosa with *Kalanchoe* and *Dianthus* with *Kalanchoe* and *Chrysanthemum* with *Kalanchoe* and *Gerbera* with *Kalanchoe*. Water consumption was calculated by subtracting the amount of water 7 days after start of the experiment from the initial amount of water at the start of the experiment. Of the 5 species tested, *Kalanchoe* had the significantly lowest water consumption. For *Kalanchoe* combined with Rosa the uptake of water (16,6 ml) was higher than when adding the individual uptake from *Kalanchoe* (3,4 ml) with the individual uptake from Rosa (11,6 ml). An obvious explanation is that the individual Rosa started wilting relative early compared to the Rosa combined with *Kalanchoe*. The same pattern is seen in *Gerbera*. For *Kalanchoe* combined with *Gerbera* the uptake of water (11,9 ml) was higher than when adding the individual uptake from *Kalanchoe* (3,4 ml) with the individual uptake from *Gerbera* (6,3 ml).

In *Gerbera* we experience higher water uptake in combination with *Kalanchoe*, although no wilting after 7 days (as for Rosa), but we can see that light transmission was higher through water from *Kalanchoe* combined with *Gerbera*, than from individual *Gerbera*. We see clear effects of increased light transmission through the water for all four species when combined with *Kalanchoe*, supporting the idea that cut flowers of the genus *Kalanchoe* comprise one or more substances that are excreted in the aqueous nutrient medium, or that substances excreted from plants of other species are taken up by *Kalanchoe* or that the excreted substances for the other species are eliminated or degraded by substances excreted from *Kalanchoe*. As a result of these plants of species other than *Kalanchoe* obtain the ability to live longer and to wither far later than compared to the situation without a cut flower of the genus *Kalanchoe* being, or having been in contact with the aqueous nutrient medium wherein the said cut flower is held. See also figures 3-6. Similar results were obtained when any of the *Kalanchoe* varieties as mentioned in example 1 were used instead of the *Kalanchoe* variety 'Amazing Pink Meadow' as described here.

30 Example 3

Effect of *Kalanchoe* on freshness of nutrient medium and longevity of other cut flowers – Bouquet test

A bouquet containing the *Kalanchoe* interspecific hybrid 'Adorable Pink Meadow', and the decorative greenery *Pistacia* was kept in a quality room

(Temperature: 19°C, Light: 8h/day, Light intensity: 10 $\mu\text{mol}/\text{m}^2/\text{s}$) in tap water (pH 6,8, EC 0.72 mS/cm) for 3 weeks after harvesting of the cut flowers and decorative greenery. Both the cut flowers and decorative greenery remained fresh, as well as the basal parts of both. See figure 7A and 7B, respectively. The tap water remained
5 fresh during this period, see figure 7C. The amount of water was reduced by 75% over the 3 weeks indicating significant uptake of water and compounds emitted from the *Kalanchoe* cut flowers. The transmission through the water that has surrounded the basal parts of the cut flowers and decorative greenery was measured. We found the transmission to be reduced to 91,7% of the initial 100% measured in tap water.
10 The very high transmission rate and the lack of any odors from the water indicate that there are no significant microbial activity in the water. Similar results were obtained for other *Kalanchoe* containing bouquets, such as shown in figures 1A-G.

Example 4

15 *Kalanchoe* live longer in tap water than without

A bouquet containing *Kalanchoe* 'Amazing Pink Meadow' was kept for over 5 weeks in a quality room (Temperature: 19°C, Light: 8h/day, Light intensity: 10 $\mu\text{mol}/\text{m}^2/\text{s}$) in tap water (pH 6,8, EC 0.72 mS/cm) or without. After 1, 3 and 5 weeks, the flowers were evaluated and it was shown that the flowers that were kept in tap
20 water kept more fresh than those without water. See figures 8A-C, respectively.

CONCLUSIES

1. Werkwijze voor het verschaffen van een waterig voedingsmedium met verlengde versheid voor het houden van snijbloemen, omvattende de stap van het met het waterig voedingsmedium in contact laten zijn van een of meer snijbloemen die behoren tot het geslacht *Kalanchoe*, met het snijoppervlak van de stengel ervan.
2. Werkwijze voor het verschaffen van verlengde levensduur aan een of meer snijbloemen, omvattende de stap van het met het waterige voedingsmedium zoals verschaft door de werkwijze volgens conclusie 1 in contact brengen van de een of meer snijbloemen, met het snijoppervlak van de stengel ervan.
3. Werkwijze volgens conclusie 2, met het kenmerk, dat de een of meer snijbloemen waaraan een verlengde levensduur wordt verschaft, behoren tot een geslacht, anders dan *Kalanchoe*.
4. Werkwijze volgens conclusie 2 of 3, met het kenmerk, dat de een of meer snijbloemen die tot het geslacht *Kalanchoe* behoren gelijktijdig met de een of meer snijbloemen waaraan verlengde levensduur wordt verschaft, in het waterige voedingsmedium worden gehouden.
5. Werkwijze volgens conclusie 4, met het kenmerk, dat de een of meer snijbloemen een samenstelling van meerdere snijbloemen omvat.
6. Werkwijze volgens conclusie 5, met het kenmerk, dat de samenstelling meerdere snijbloemen omvat die tot verschillende geslachten, soorten en/of variëteiten behoren.
7. Werkwijze volgens willekeurig welke van conclusies 2 - 6, met het kenmerk, dat de snijbloemen in een boeket zijn gerangschikt.
8. Samenstelling van snijbloemen met verlengde levensduur, waarbij de samenstelling een combinatie van een of meer snijbloemen omvat die behoren tot een geslacht, anders dan *Kalanchoe*, en een of meer snijbloemen die tot het geslacht *Kalanchoe* behoren.
9. Samenstelling volgens conclusie 8, met het kenmerk, dat de een of meer snijbloemen die behoren tot een geslacht anders dan *Kalanchoe*, meerdere snijbloemen bevatten die tot verschillende geslachten, soorten en/of variëteiten behoren.
10. Samenstelling volgens conclusie 8 of 9, met het kenmerk, dat de samenstelling van de snijbloemen in een boeket is gerangschikt.

11. Toepassing van een of meer snijbloemen van het geslacht *Kalanchoe* voor de bereiding van een waterig voedingsmedium met verlengde versheid voor het houden van bloemen.
12. Toepassing van een of meer snijbloemen van het geslacht *Kalanchoe* voor het verlengen van de levensduur van een of meer snijbloemen die behoren tot een geslacht anders dan *Kalanchoe*.
13. Toepassing volgens conclusie 12, met het kenmerk, dat de een of meer snijbloemen van het geslacht *Kalanchoe* in een boeket worden opgenomen, waarbij het boeket de een of meer snijbloemen omvat die behoren tot een geslacht anders dan *Kalanchoe*.
14. Toepassing volgens conclusie 13, met het kenmerk, dat de een of meer snijbloemen die tot een geslacht behoren anders dan *Kalanchoe* meerdere snijbloemen omvatten die behoren tot verschillende geslachten, soorten en/of variëteiten.
15. Werkwijze volgens willekeurig welke van conclusies 2 - 7, samenstelling volgens willekeurig welke van conclusies 8 - 10 of toepassing volgens willekeurig welke van conclusies 11 - 14, waarin de een of meer snijbloemen die tot het geslacht *Kalanchoe* behoren interspecifieke hybriden zijn.
16. Werkwijze, samenstelling of toepassing volgens conclusie 15, waarin de interspecifieke hybride gekozen is uit de groep, bestaande uit 'Adorable White Meadow', 'African Delight', 'Sophisticated Pink Meadow', 'Amazing Pink Meadow', 'Adorable Pink Meadow', 'Blossom Pink Meadow', 'Feminine Pink Meadow', 'Feminine Orange Meadow', 'MADONNAQ2', 'Spring Yellow Meadow', 'Warm Yellow Meadow', '2011-1274', 'Charming Purple Meadow', *Kalanchoe humilis* 'Surprising Desert', of een combinatie van twee of meer daarvan.



Fig 1A



Fig 1B



Fig 1C



Fig 1D



Fig 1E



Fig 1F



Fig 1G



Fig 2A

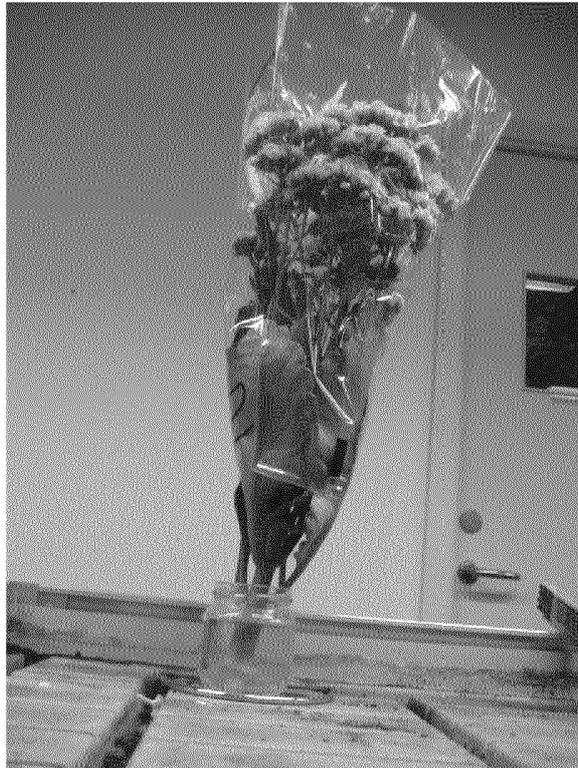


Fig 2B

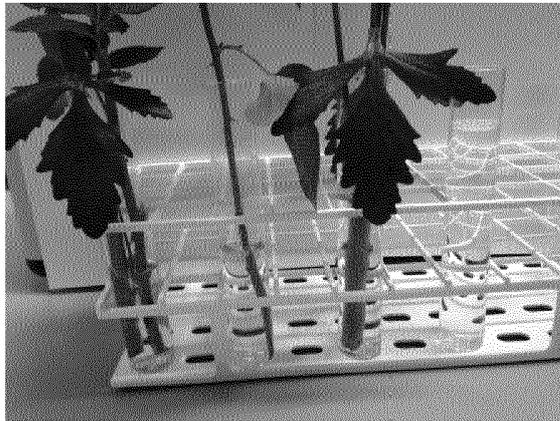


Fig 3A



Fig 3B



Fig 3C

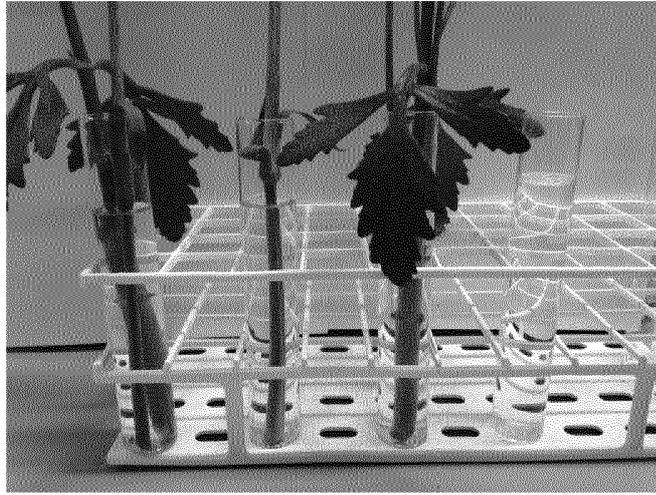


Fig 4



Fig 5

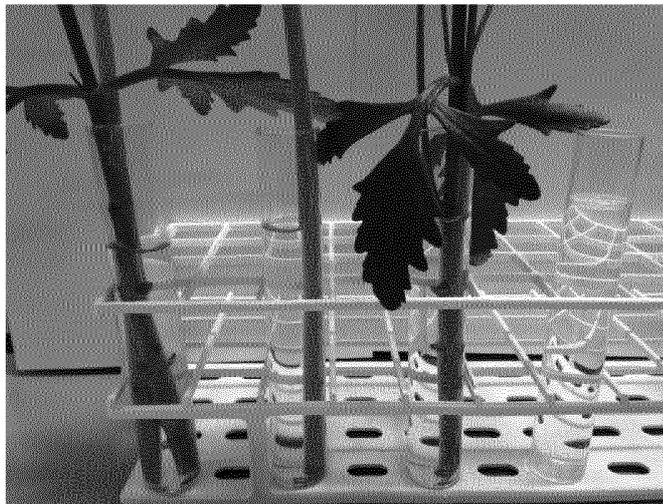


Fig 6



Fig 7A



Fig 7B



Fig 7C



Fig 8A

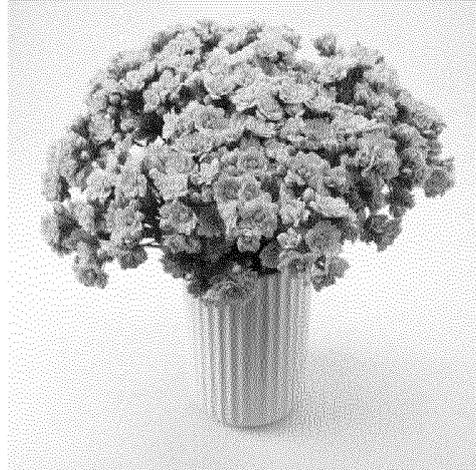


Fig 8B

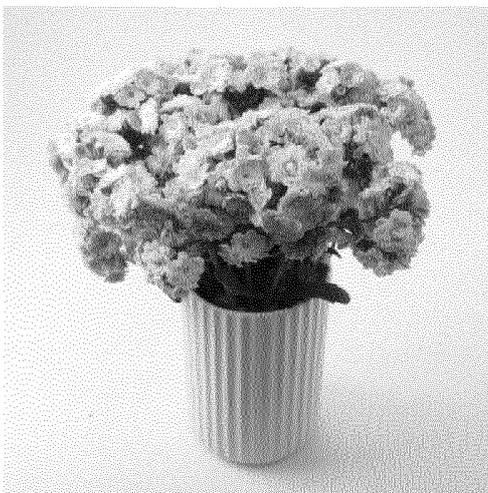
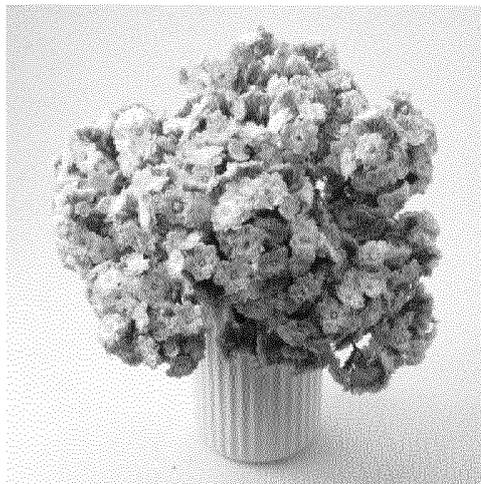


Fig 8C



SAMENWERKINGSVERDRAG (PCT)

RAPPORT BETREFFENDE NIEUWHEIDSONDERZOEK VAN INTERNATIONAAL TYPE

IDENTIFICATIE VAN DE NATIONALE AANVRAGE	KENMERK VAN DE AANVRAGER OF VAN DE GEMACHTIGDE	
	60559NL	
Nederlands aanvraag nr.	Indieningsdatum	
2012150	27-01-2014	
	Ingeroepen voorrangsdatum	
Aanvrager (Naam)		
Knud Jepsen A/S		
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.	
12-04-2014	SN 61785	
I. CLASSIFICATIE VAN HET ONDERWERP (bij toepassing van verschillende classificaties, alle classificatiesymbolen opgeven)		
Volgens de internationale classificatie (IPC)		
A01N3/02 A01H5/02		
II. ONDERZOCHE GEBIEDEN VAN DE TECHNIEK		
Onderzochte minimumdocumentatie		
Classificatiesysteem	Classificatiesymbolen	
IPC	A01N A01H	
Onderzochte andere documentatie dan de minimum documentatie, voor zover dergelijke documenten in de onderzochte gebieden zijn opgenomen		
III.	<input type="checkbox"/>	GEEN ONDERZOEK MOGELIJK VOOR BEPAALDE CONCLUSIES (opmerkingen op aanvullingsblad)
IV.	<input type="checkbox"/>	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 2012150

<p>A. CLASSIFICATIE VAN HET ONDERWERP INV. A01N3/02 A01H5/02 ADD.</p> <p>Volgens de Internationale Classificatie van octrooien (IPC) of zowel volgens de nationale classificatie als volgens de IPC.</p>																	
<p>B. ONDERZOCHE GEBIEDEN VAN DE TECHNIEK</p> <p>Onderzochte minimum documentatie (classificatie gevolgd door classificatiesymbolen) A01N A01H</p> <p>Onderzochte andere documentatie dan de minimum documentatie, voor dergelijke documenten, voor zover dergelijke documenten in de onderzochte gebieden zijn opgenomen</p> <p>Tijdens het onderzoek geraadpleegde elektronische gegevensbestanden (naam van de gegevensbestanden en, waar uitvoerbaar, gebruikte trefwoorden) EPO-Internal, WPI Data, BIOSIS</p>																	
<p>C. VAN BELANG GEACHTE DOCUMENTEN</p> <table border="1"> <thead> <tr> <th>Categorie °</th> <th>Geciteerde documenten, eventueel met aanduiding van speciaal van belang zijnde passages</th> <th>Van belang voor conclusie nr.</th> </tr> </thead> <tbody> <tr> <td>X</td> <td>Robert Koene: "Kalanchoe as cut flower in wedding bouquet", 18 juli 2008 (2008-07-18), XP054975483, Gevonden op het Internet: URL:https://www.youtube.com/watch?v=Iae09_1s04A [gevonden op 2014-08-11] * See 0:00-0:30 *</td> <td>8-10,15, 16</td> </tr> <tr> <td>X</td> <td>J. HOOFTMAN: "Gek op Kalanchoe", BLOEM EN BLAD, nr. 8, 1 augustus 2012 (2012-08-01), bladzijden 10-18, XP009179663, Leiden</td> <td>8-10</td> </tr> <tr> <td>Y</td> <td>* het gehele document *</td> <td>1-7, 11-16</td> </tr> <tr> <td></td> <td style="text-align: center;">----- -/--</td> <td></td> </tr> </tbody> </table>			Categorie °	Geciteerde documenten, eventueel met aanduiding van speciaal van belang zijnde passages	Van belang voor conclusie nr.	X	Robert Koene: "Kalanchoe as cut flower in wedding bouquet", 18 juli 2008 (2008-07-18), XP054975483, Gevonden op het Internet: URL:https://www.youtube.com/watch?v=Iae09_1s04A [gevonden op 2014-08-11] * See 0:00-0:30 *	8-10,15, 16	X	J. HOOFTMAN: "Gek op Kalanchoe", BLOEM EN BLAD, nr. 8, 1 augustus 2012 (2012-08-01), bladzijden 10-18, XP009179663, Leiden	8-10	Y	* het gehele document *	1-7, 11-16		----- -/--	
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Y	* het gehele document *	1-7, 11-16															
	----- -/--																
<p><input checked="" type="checkbox"/> Verdere documenten worden vermeld in het vervolg van vak C. <input checked="" type="checkbox"/> Leden van dezelfde octrooifamilie zijn vermeld in een bijlage</p>																	
<p>° Speciale categorieën van aangehaalde documenten</p> <p>"A" niet tot de categorie X of Y behorende literatuur die de stand van de techniek beschrijft</p> <p>"D" in de octrooiaanvraag vermeld</p> <p>"E" eerdere octroop(aanvraag), gepubliceerd op of na de indieningsdatum, waarin dezelfde uitvinding wordt beschreven</p> <p>"L" om andere redenen vermelde literatuur</p> <p>"O" niet-schriftelijke stand van de techniek</p> <p>"P" tussen de voorrangsdatum en de indieningsdatum gepubliceerde literatuur</p> <p>"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</p> <p>"X" de conclusie wordt als niet nieuw of niet inventief beschouwd ten opzichte van deze literatuur</p> <p>"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</p> <p>"&" lid van dezelfde octrooifamilie of overeenkomstige octrooipublicatie</p>																	
<p>Datum waarop het onderzoek naar de stand van de techniek van internationaal type werd voltooid</p> <p>19 augustus 2014</p>		<p>Verzenddatum van het rapport van het onderzoek naar de stand van de techniek van internationaal type</p>															
<p>Naam en adres van de instantie</p> <p>European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016</p>		<p>De bevoegde ambtenaar</p> <p>Klaver, Jos</p>															

**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 2012150

C.(Vervolg). VAN BELANG GEACHTE DOCUMENTEN		
Categorie °	Geciteerde documenten, eventueel met aanduiding van speciaal van belang zijnde passages	Van belang voor conclusie nr.
X	<p>Anonymous: "Danish kalanchoe breeder steps into cut flower industry", 15 januari 2014 (2014-01-15), XP055134276, Gevonden op het Internet: URL:http://www.newplantsandflowers.com/danish-kalanchoe-breeder-steps-into-cut-flower-industry/ [gevonden op 2014-08-12]</p>	1,2, 8-10,15, 16
Y	* het gehele document *	1-7, 11-14
X	<p>----- Lotte Bjarke: "Ethylene resistant Kalanchoes from Denmark", Flora Culture International, 1 maart 2012 (2012-03-01), bladzijden 16-17, XP055134322, Gevonden op het Internet: URL:http://www.floraculture.eu/digizine/march2012_2/magazine.html [gevonden op 2014-08-12] * het gehele document *</p>	1-15
X	<p>----- H LESZCZYŃSKA-BORYS ET AL: "Bryophyllum pinnatum Kurz. - A NEW CUT FLOWER SPECIES. I. AESTHETIC VALUE", REVISTA CHAPINGO SERIE HORTICULTURA, deel 8, 8 december 2002 (2002-12-08), bladzijden 119-123, XP055134347,</p>	1,2,11
Y	* bladzijde 120, kolom 1, alinea 4 * * bladzijde 122, kolom 2, alinea 1; figuur 4 *	3-7, 12-16
A	<p>----- EP 1 671 536 A1 (KNUD JEPSEN AS [DK]) 21 juni 2006 (2006-06-21) * alineas [0002], [0004], [0005], [0010] - [0012], [0147], [0281], [0416], [0548], [0683], [0820], [0949], [1079], [1209] *</p>	1-16

**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 2012150

In het rapport genoemd octrooigescrift	Datum van publicatie	Overeenkomend(e) geschrift(en)	Datum van publicatie
EP 1671536	A1 21-06-2006	EP 1671536 A1	21-06-2006
		US 2006041964 A1	23-02-2006
		US 2006130191 A1	15-06-2006
		US 2009044295 A1	12-02-2009

WRITTEN OPINION

File No. SN61785	Filing date (<i>day/month/year</i>) 27.01.2014	Priority date (<i>day/month/year</i>)	Application No. NL2012150
International Patent Classification (IPC) INV. A01N3/02 A01H5/02			
Applicant Knud Jepsen AS			

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 Klaver, Jos
--	-------------------------

WRITTEN OPINION**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	3-7, 12-16
	No: Claims	1, 2, 8-11
Inventive step	Yes: Claims	
	No: Claims	1-16
Industrial applicability	Yes: Claims	1-16
	No: Claims	

2. Citations and explanations

see separate sheet

WRITTEN OPINION

Application number
NL2012150

Box No. VII Certain defects in the application

see separate sheet

Re Item V

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

1). The subject-matter of present claims 1, 2 (partly), 8 - 11, 15 and 16 (the latter claims insofar as dependent on claims 8 - 10) is not novel:

Compositions of cut flowers comprising cut flowers other than Kalanchoe and one or more flowers of the genus Kalanchoe are known from Koene, 2008 (= D1 of the National Search Report), and Hooftman, 2012 (= D2). Such bouquets also have been strongly suggested in the Internet-citation of 15.01.2014 (= D3).

D1 - D3 hence anticipate the subject-matter of present claims 8 - 10, 15 and 16 (the latter claims insofar as depending on claims 8 - 10). It is pointed out that the desired property of a prolonged longevity cannot be used to distinguish the claimed flower compositions from the ones disclosed in the prior art since this property is considered an intrinsic property of the combined flowers.

The process of claim 1 essentially defines the preparation of an aqueous medium by contacting it with cut flowers of a Kalanchoe genus. Such a process is disclosed in or at least derivable from: D2: pictures with Kalanchoe flowers in water), D3 (picture disclosing vase with Kalanchoe flowers); Bjarke, 2012 (= D4: pictures disclosing aqueous media containing Kalanchoe flowers); Leszczynska-Borys et al., 2002 (= D5: Kalanchoe flowers kept in water). The desired property of the obtained aqueous medium cannot be used to distinguish the claimed preparation process from those of the prior art since this property is the automatic and inevitable result of the preparations or processes illustrated by D2 - D5. The use of cut flowers of Kalanchoe for preparing an aqueous medium as defined by claim 11 is for the same reason anticipated by these citations as well.

Insofar as the process of claim 2 is directed at prolonging the longevity of cut flowers of Kalanchoe, said process also is anticipated by D2 - D5.

2). A process for prolonging the longevity of cut flowers by contacting an aqueous medium, which has been previously contacted with the cut stems of a Kalanchoe flower, with flowers other than Kalanchoe has not been disclosed in the prior art. The subject-matter of claims 2 - 7, insofar as directed at this embodiment, hence is novel.

The use of cut flowers of Kalanchoe for prolonging the longevity of cut flowers of a different genus as defined by claims 12 - 14 has not been disclosed in the citations of the NSR either either. The subject-matter of claims 2 (partly) - 7, 12 - 14, 15 and 16, the latter insofar as dependent on claims 2 (partly) - 7 and 12 - 14 hence is novel.

3). The subject-matter of claims 1 - 16, insofar as novel, is not considered to be based on an inventive step for the following reasons:

The process and use as defined by claims 1 - 16, insofar as novel, differ from the closest prior art, which appears to be defined by D2 or, alternatively D3 or D4, in the different purpose of the combination of Kalanchoe and other cut flowers. The problem underlying the present application starting from either one of D2 - D4 may be defined as to provide a process of prolonging the longevity of cut flowers

The examples of the present application do not convincingly show that this problem has been solved over the whole scope, i.e. for every possible Kalanchoe species in combination with every possible cut flower. Several examples actually show that combinations with Dianthus, Gerbera or Chrysanthemum actually have a similar or even reduced longevity when combined with (a preferred species of) Kalanchoe (Table 2).

The 'ornamental value' is a parameter which appears to be more influenced by subjective criteria and hence cannot be used to establish a possible inventive merit.

In view of these data, the problem underlying the application has to be defined much less ambitious, i.e. to provide a process for providing an alternative use of Kalanchoe flowers. The combination with other cut flowers in aqueous media then is obvious: the addition of further flowers to the arrangements as disclosed in D3 - D5 appears trivial whereas keeping the bouquets disclosed in D1, D2 or D3 in water also appears a known (D2) or obvious measure.

It is, in this respect pointed out that the web source cited in the application (page 1, line 33 - 34 is not retrievable anymore. This disclosure moreover appears to be contradicted by the illustrations of D2 and D4 and the disclosure of D5.

4). The industrial applicability is evident.

Re Item VII

Certain defects in the application

The relevant background art disclosed in D1 - D5 is not mentioned in the description, nor are these documents identified therein.

The internet citation mentioned on page 1, line 33 - 34 is not accessible.