

Improvements in or relating to organic compoundsField of the invention

- 5 The present invention relates generally to novel compounds, perfume compositions containing them and their use in perfumery.

Background of the invention

- 10 Compounds having a floral, and more particularly a lily of the valley, odour are sought after as perfume ingredients. They are important in floral bases and can act as harmonizers across many types of fragrance creations. Compounds of this type are used widely in household care, laundry care, and personal care products, as well as in fine perfumery, to generate pleasant odours or to mask unpleasant odours.

- 15 4,8-dimethyl-10-hydroxy-4-decenal, in the form of its racemic mixture, as well as its use in perfumery and flavour creation is described in the literature. Specifically, the racemic mixture is disclosed in JP S52-91815A, being described as having a sweet, cyclamen-like odour. It is also suggested that the racemic mixture could be used in perfume compositions in
20 combination with buffering agents in WO2021108472. Whereas, flavour formulations containing the racemic mixture are suggested in WO2021/167054. However, the racemic mixture is not commercially available to the applicant's best knowledge.

- Notwithstanding prior art disclosures such as those referenced above, as well as the
25 commercial availability of many other iconic muguet-type odourant molecules, manufacturers of consumer products are constantly seeking novel odourant ingredients or novel forms of odourant ingredients that are capable of creating, modifying or enhancing a muguet odour characteristic and that can be easily incorporated into floral bases to act as harmonizers across many types of fragrant creations, in more sustainable and cost-effective ways.

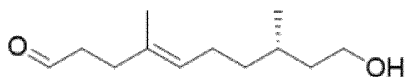
- 30 Novel ingredients and forms are sought after not only in their own right, but also as replacers for the gentle, floral notes of iconic muguet aldehydes such as Lyrall and Lillial, or as alternatives for otherwise valued muguet aldehydes that might not enjoy wide usage levels for reasons related to their lack of biodegradability or cost-effectiveness in application.

There remains a need for new perfume ingredients or new forms of perfume ingredients that can impart muguet characteristics to consumer products and which are biodegradable and cost-effective in use.

5 Summary of the invention

In addressing the deficiencies in the prior art, the applicant discovered in a surprising manner that a particular enantiomer of 4,8-dimethyl-10-hydroxy-4-decenal is a particularly effective fragrance ingredient displaying a powerful muguet odour without the fatty note that is
10 sometimes associated with typical muguet odourants. The applicant was still further surprised to discover that the enantiomer not only displays a delightful odour, but that it is both biodegradable, and highly impactful compared with other muguet odourants in general, and compared to its enantiomer in particular.

15 In a first aspect of the invention there is provided (*S,E*)-10-hydroxy-4,8-dimethyldec-4-enal according to the formula (I)



20 In a second aspect of the invention there is provided a method of preparing the compound according to formula (I)

In a third aspect of the invention there is provided a perfume composition comprising the compound of formula (I) and at least one other perfume ingredient.

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In a fourth aspect of the invention there is provided the use of the compound according to the first aspect of the invention to impart, enhance or improve a pleasant odour impression or to mask, reduce or eliminate an unpleasant odour impression.

30 In a fifth aspect of the invention there is provided a consumer product comprising a compound according to the first aspect of the invention.

The details, examples and preferences provided in relation to any one or more of the stated aspects of the present invention will be further described herein and apply equally to all aspects of the present invention. Any combination of embodiments, examples and preferences described herein below in all possible variations thereof are encompassed by the present invention unless otherwise indicated herein, or otherwise clearly contradicted by context.

Detailed description of the invention

10 The first aspect of the invention is concerned with the enantiomer (*S,E*)-10-hydroxy-4,8-dimethyldec-4-enal, also referred to herein as the compound of formula (I). To the applicant's knowledge, the preparation and characterization of this enantiomer, and its use in perfumery, has not been described in the literature.

15 The compound of formula (I) was found to have unpredictable and advantageous odour properties. Through sensory evaluation by trained panelists, it was discovered that this enantiomer could be generally described as a floral, muguet odourant with more specific odour facets that could be described as very pleasant rosy, aldehydic and metallic. In this regard, the compound of formula (I) was assessed to have a more pleasant odour than its
20 R,E enantiomer, which panelists describe as having hot iron, sharp, and only thin floral notes. The hot iron, sharp notes were also found to be characteristic of the racemic mixture.

Having found that the compound of formula (I) possessed the odour tonality of a muguet aldehyde with pleasant odour notes, it was unexpectedly discovered that the compound of
25 formula (I) was far more potent than its (R,E)- 10-hydroxy-4,8-dimethyldec-4-enal enantiomer.

The potency of its odour in comparison to the R,E enantiomer was discovered by measuring their EC 50 values by means of an in-vitro assay employing a novel olfactory receptor implicated in the human sensing of muguet-type odourants. This test is more fully described
30 in the Examples, below.

The potency of the compound of formula (I) compared to its R,E enantiomer is significant and of particular interest to the perfumer for reasons related to sustainability and economy,

particularly considering that the compound of formula (I) can be prepared according to a cost-effective synthesis as described more fully herein below.

Still further, the compound of formula (I) was discovered to be biodegradable. Adding
5 biodegradable ingredients to the perfumer's palette that have wide applicability in floral bases is of particular importance for the perfume industry. In particular, the compound of formula (I) represents a useful biodegradable replacement for certain popular muguet aldehydes, such as 4-(Octahydro-4,7-methano-5Hinden-5-ylidene)butanal, available under the trade name Dupical®.

10 In the context of the present invention, the compound of formula (I) is considered to be biodegradable if it meets the pass criteria in accordance with OECD manometric respirometry methods, and in particular the OECD 301F method which methods are well known in the art. In this method the pass level for a compound to be considered as having "ready
15 biodegradability" or being "readily biodegradable" is to reach 60 % of theoretical oxygen demand and/or chemical oxygen demand. This pass value has to be reached in a 10-day window within the 28-day period of the test. The 10-day window begins when the degree of biodegradation has reached 10% of theoretical oxygen demand and/or chemical oxygen demand and must end before day 28 of the test. A preferred way of conducting OECD
20 Method 301F is provided herein below.

Given a positive result in a test of ready biodegradability, it may be assumed that a compound will undergo rapid and ultimate biodegradation in the environment (Introduction to the OECD 25 Guidelines for the Testing of Chemicals, Section 3, Part 1: Principles and
25 Strategies Related to the Testing of Degradation of Organic Chemicals; Adopted: July 2003).

An assessment of "inherently biodegradable" can also be made using the OECD Method 301F, although with a different pass criterion. More specifically, the pass criterion is 60 % of theoretical oxygen demand and/or chemical oxygen demand. This pass value can be reached
30 after the 28-day period of the test, which is usually extended to 60 days. No 10-day window applies.

Owing to its delicate floral odour, its freshness and natural dimensions, and its high potency, the compound of formula (I) can be used in relatively high concentrations, particularly in floral
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perfume compositions to act as a harmonizer across many olfactive directions in fragrance creation. The compound of formula (I) is particularly useful to any perfumer intent on creating a perfume composition containing high levels of biodegradable ingredients.

- 5 The invention in its second aspect is concerned with a method of preparing the compound of formula (I).

In an embodiment of the invention, the compound of formula (I) may be prepared according to a process analogous to a process described in WO2021/108472, which method is herein
10 incorporated by reference and shown as “path A” in Figure 1. This synthetic route is also described in more detail in the Examples, below.

In another embodiment of the invention, the compound of formula (I) may be prepared by the selective oxidative cleavage of the distal double bond of the readily available starting material
15 (S,E)-dihydrofarnesol (CAS 27745-36-4; Biocyclamol™). This route is shown as “path B” in Figure 1.

The compound of formula (I) is useful as a perfume ingredient in perfume compositions, which perfume compositions form a third aspect of the invention.

20 Perfume compositions according to the invention comprise the compound of formula (I) and at least one other perfume ingredient and/or adjuvant that may be typically employed in perfumery.

- 25 In particular embodiments of the invention, the perfume composition comprises 4,8-dimethyl-10-hydroxy-4-decenal, enantioenriched in the compound of formula (I).

In more particular embodiments of the invention, when the perfume composition contains 4,8-dimethyl-10-hydroxy-4-decenal, enantioenriched in the compound of formula (I), the
30 compound of formula (I) is present in an enantiomeric excess (ee) of at least 60 %, more particularly at least 75 %, more particularly still at least 90 % and even more particularly at least 95 %.

In particular embodiments of the invention, the perfume composition comprises the compound of formula (I) in enantiomerically pure form, that is 100 % ee.

In related embodiments of the invention, when the perfume composition contains 4,8-dimethyl-10-hydroxy-4-decenal as a mixture of enantiomers enantioenriched in the
5 compound of formula (I), the mixture may be the product of an enantio-selective synthesis, the result of a chiral separation, or it may be obtained by physically mixing the compound of formula (I) with an isomeric mixture, e.g. the racemate, of 4,8-dimethyl-10-hydroxy-4-decenal.

10 In particular embodiments of the invention the perfume composition may comprise the compound of formula (I) in admixture with its structural isomer (S,Z)-10-hydroxy-4,8-dimethyldec-4-enal. In more particular embodiments, the S,Z isomer is present in relatively minor amounts, that is, the ratio of S,E to S,Z is at least 90:10 by weight, and more particularly 99:1 by weight. In another particular or preferred embodiment, the ratio of S,E to
15 S,Z is at least 70:30, more preferably 75:25.

Perfume compositions according to the invention may contain one or more perfumery ingredients commonly used in perfumery. These perfume ingredients may include any of the perfumery essential oils, alcohols, aldehydes, ketones, ethers, acetals, esters, lactones,
20 macrocycles and heterocycles commonly used in perfumery, as well as any excipients or adjuvants conventionally used in conjunction with such perfumery ingredients for example, solvents, diluents and other auxiliary agents commonly used in the art such as preservatives and the like. Such perfume ingredients are described in standard perfumery text books and references such as "Perfume and Flavour Chemicals", S. Arctander, Allured Publishing
25 Corporation, 1994, IL, USA, and later editions thereof, which are incorporated herein by reference.

As adjuvants or excipients that can be employed in perfume compositions according to the invention, there can be mentioned any of those conventional ingredients, which are employed
30 in perfume compositions for reasons other than, or not specifically related to, their odour characteristics. For example, an adjuvant or excipient may be an ingredient that acts as an aid to processing a perfume ingredient or ingredients, or a perfume composition containing said ingredient(s), or it may improve handling or storage of a perfume ingredient or perfume composition containing same. It might also be an ingredient that provides additional benefits

such as imparting colour or texture. It might also be an ingredient that imparts light resistance or chemical stability to one or more ingredients contained in a perfume ingredient or perfume composition containing same. A detailed description of the nature and type of such materials that can be employed in perfume compositions containing same cannot be exhaustive, but it

5 has to be mentioned that said ingredients are well known to a person skilled in the art. Examples include solvents and co-solvents; surfactants and emulsifiers; viscosity and rheology modifiers; thickening and gelling agents; preservative materials; pigments, dyestuffs and colouring matters; extenders, fillers and reinforcing agents; stabilisers against the detrimental effects of heat and light, bulking agents, acidulants, buffering agents and

10 antioxidants.

Any one or more of the perfume ingredients or adjuvants or excipients employed in a perfume composition according to the present invention can be formulated in a delivery vehicle if desired to provide a particular perfumery or functional effect, such as alteration of the spatio-

15 temporal odour profile of the perfume composition. Delivery vehicles may include microcapsules, or other solid support onto which one or more perfume ingredients or adjuvants may be chemically or physically bound. Still further, one or more perfume ingredients or adjuvants may be dissolved or dispersed in a matrix material, which serves to control the rate at which said ingredient or ingredients emanates therefrom. In yet an

20 alternative embodiment, one or more ingredients or adjuvants may be supported on a porous substrate, such as a cyclodextrin or a zeolite or other inorganic material. In still further embodiments, one or more perfume ingredients may be provided in the form of a so-called pro-perfume or perfume precursor, which can be activated under certain conditions such as moisture, heat or light to release the perfume ingredient in a controlled manner. Having

25 regard to the foregoing, it will be appreciated that a perfume composition may be at least partly in solid form, in gel form, in foam form and/or liquid form. If it is present in solid form, it then it may take the form of granules, powders or tablets.

As stated already herein, the compound according to formula (I) is particularly useful at least

30 in part because it is biodegradable. It may be used in perfume compositions for its hedonics as well as to increase the percentage of biodegradable ingredients contained in such compositions, or it may be used in combination with other biodegradable perfume ingredients to form entirely biodegradable perfume compositions. Still further, consumer products

comprising the compound or perfume compositions of the invention therefore may also be considered to be comprised partially or totally of biodegradable materials.

In accordance with the fourth aspect of the invention the compound according to the formula (I) and perfume compositions containing same are useful in perfumery, and in particular to impart, enhance or improve a pleasant odour impression or to mask, reduce or eliminate an unpleasant odour impression.

The unpleasant odour that is required to be reduced or eliminated may emanate from a consumer product into which the compound or perfume composition is incorporated, or the unpleasant odour may emanate from a situs, such as the human or animal body, or an inanimate surface, onto which the consumer product is intended to be applied in order to treat an odour.

The compound of formula (I) may be used in perfumery, and may be employed in widely varying amounts in perfume compositions of the invention depending upon the particular olfactive effect a skilled perfumer wants to achieve. Owing to its high impact, it can be used in small quantities to achieve an olfactive effect in an economical fashion. Alternatively, because of its fresh, diffusive, transparent and easily harmonizing hedonics, it can be used in relatively high amounts to act as a harmonizer in perfume compositions across a variety of olfactive directions. Typically, the compound of formula (I) can be employed in widely varying amounts ranging from 0.0001 to 90 wt% of the perfume composition, preferably 0.001 to 50 wt%, more preferably 0.01 to 20 wt% and most preferably 0.1 to 10 wt%.

The compound of formula (I) exhibits odour characteristics that are similar to other known muguet aldehydes, such as Lyr[®]al or Dupic[®]al. As such, the compound of formula (I) can be used in perfume compositions as a replacer for certain muguet aldehydes, such as these compounds.

Accordingly, the use of a compound of formula (I) to impart a muguet odour to a perfume composition or to act as a replacer for another muguet aldehyde perfume ingredient, such as Lyr[®]al or Dupic[®]al, as well as perfume compositions containing the compound of formula (I) that are free or substantially free of said muguet aldehydes, such as Lyr[®]al or Dupic[®]al, represent additional embodiments of the present invention.

As used herein, the term "substantially free" means that to the extent that an aforementioned muguet aldehyde, such as Lyrat[®] or Dupical[®], is present in a perfume composition, then it is present in trace amounts below a level that would be consistent with its customary use in perfumery as practiced by skilled perfumers. More particularly, its presence would be less
5 than 0.1 wt %, based on the total weight of the perfume composition.

Whether the compound of formula (I) is used in a perfume composition as a replacer for another muguet aldehyde, or whether it is used in its own right to create a hedonic effect, the skilled perfumer may find it desirable to employ additional complementary perfume
10 ingredients in combination with the compound of formula (I) in order to balance or fine tune its odour characteristics and that of a perfume composition containing it.

Accordingly, in particular embodiments of the invention perfume compositions comprise a perfume composition comprising a compound according to formula (I), optionally in admixture
15 with one or more of the following ingredients: 2-cyclohexylidene-2- phenylacetonitrile, e.g. PEONILE[™]; (9-hydroxy-5,9-dimethyl-4-Decenal) MAHONIAL[™] and 4-methyl-2-(2-methylpropyl)tetrahydro-2H- pyran-4-ol, e.g. FLOROSA[™]; and methyl 2-(2-hexyl-3-oxocyclopentyl)acetate, e. g. HEDIONE[™].

20 The perfume compositions described herein need not be limited only to these selected ingredients. The perfume compositions may contain one or more additional fragrance ingredients that are particularly harmonious in combination with the compound of formula (I).

Particular perfume ingredients that may be used harmoniously with the compound of the
25 formula (I) include but are not limited to:

Natural ingredients, such as those selected from Iris, Mimosa, Ylang, Bergamot, jasmine and rose;

30 Synthetic muguet fragrance ingredients such as Cyclamen aldehyde (103-95-7), Hydroxycitronellal (107-75-5), Hydroxy Citronellal diethyl acetal (7779-94-4), Silvial (6658-48-6), Bourgeonal (18127-01-0), Florhydral (125109-85-5), and Cyclemax (7775-00-0); and Dupical (30168-23-1).

Floral ingredients of the rose type such as ethyl phenyl alcohol (60-12-8), Dimethyl phenyl ethyl carbinol (103-05-9), Citronellol (106-22-9), Rhodinol (106-22-9), Acet. DMBC (151-05-3), Geraniol (106-24-1), Nerol (106-25-2), Nerolidol (7212-44-4), Mefrosol (55066-48-3), Peomosa (19819-98-8), citronellyl iso butyrate (97-89-2), and Majantol (103694-68-4);

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Floral ingredients of the freesia type such as Linalool (78-70-6), Rossitol (215231-33-7), and Coranol (83926-73-2);

10 Floral ingredients of the lilac type such as Ale. Cinnamic alcohol (104-54-1), propyl phenyl alcohol (122-97-4) and Terpeneol (8000-41-7);

Floral ingredients of the jasmine type such as benzyl acetate (140-11-4), Hedione (24851-98-7), Hexyl Cinnamic aldehyde (101-86-0), and Amyl Cinnamic aldehyde (122-40-7);

15 Floral ingredients of the muguet type such as Super Muguet (26330-65-4), Hydroxycitronellal dimethyl acetate (141-92-4), Magnol (92046-49-6),

Mugetanol (63767-86-2), Mugesia (56836-93-2), Indole (120-72-9), and Indolene (67860-00-8);

20

Green ingredients such as cis 3 Hexenol (928-96-1), phenyl acetic aldehyde (122-78-1), Maceal (67845-30-1), cis 3 hexenyl acetate (3681-71-8), Acetal CD (29895-73-6), Precarone (74499-58-4), Meftanal (55066-49-4), Elintaal (40910-49-4), Glycolieral (68901-32-6), and Coranol (83926-73-2);

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Fresh ingredients such as C11 undecelenic aldehyde (112-45-8), C11 undecylic aldehyde (112-44-7), C 10 aldehyde (112-31-2), C 12 MNA aldehyde (110-41-8), Tropional (1205-17-0), Citral (5392-40-5), Oxyde de Limette (73018-51-6), Florhydral (125109-85-5), Floralozone (67634-15-5), Dihydro Farnesal (51513-58-7), Dihydrofarnesol (51411-24-6), Adoxal (141-13-9), Citronellyl Oxyacetaldehyde (7492-67-3), Floral super (71077-31-1) and Dodecenal (4826-62-4) ;

30

Woody ingredients such as Irisone (8013-90-9) and methyl Ionone (1335-46-2);

Powdery ingredients such as Fixolide (21145-77-7), Thibetolide (106-02-5), Heliotropine (120-57-0) and Vanilline (121-33-5);

Diverse harmonic floral ingredients such as Phixia (107-75-5), Farnesal (19317-11-4),

- 5 Farnesyle acetate (29548-30-9), Rhodinyol acetate (141-11-7), Cydomethylene Citronellol (15760-18-6), Mayol (5502-75-0), Myraldyl acetate (72403-67-9), and Melonia (3613-30-7), wherein the CAS numbers of the molecules are provided in parentheses; and any mixtures thereof.

- 10 Particularly preferred perfume compositions according to the present invention contain a compound according to the formula (I) and one or more perfume ingredients selected from the group consisting of HEDIONE, ISO E SUPER, LINALOOL, AMBROFIX, GALAXOLIDE, CIS-3-HEXENOL, CITRONELLOL, VANILLIN, LINALYL ACETATE, ETHYLENE BRASSYLATE, TROPIONAL, COUMARIN, DIHYDRO MYRCENOL, ETHYL LINALOOL, 15 BENZYL ACETATE, PEACH PURE, and PHENYL ETHYL ALCOHOL.

More particularly still preferred, when the compound of formula (I) is used as a replacer for a muguet aldehyde, such as Lyrat[®] or Dupical[®], preferred perfume compositions are those described immediately above that are free or substantially free of the relevant muguet 20 aldehyde that is to be replaced.

The fifth aspect of the invention is concerned with consumer products containing the compound of formula (I) or perfume compositions containing same as defined herein.

- 25 The compound of formula (I) may be present in the consumer product in an amount ranging from about 0.0001 wt% to about 30 wt% based on the total weight of the consumer product. However, these values are given only by way of example, since the experienced perfumer may also achieve effects or may create novel accords with lower or higher concentrations.

- 30 The consumer product may be a personal care product, for example perfume extracts, eau de perfumes, eau de toilettes, aftershaves, eau de colognes, pre-shave products, splash colognes, perfumed freshening wipes, body care products, soap, liquid body wash, hair care products (e.g. shampoos, conditioners), deodorants, antiperspirants, hand creams and

lotions, foot creams and lotions, hair removal creams and lotions, aftershave creams and lotions, tanning creams and lotions, and decorative cosmetic products (e.g. make-up).

The consumer product may be a cleaning product, for example, acidic, alkaline, and neutral
5 cleaners, fabric fresheners, ironing aids, liquid detergents, fabric softeners, washing soaps, washing tablets, disinfectants (e.g. surface disinfectants), air fresheners, aerosol sprays, waxes and polishes.

The consumer product may be a homeware product, for example, candles, lamp oils, incense
10 sticks, insecticides, repellents, and propellants.

The consumer product may be a household care product, for example a textile treatment product, an ironing aid, a cleaning cloth, a laundry detergent, a cleaning product, in particular, for hard and/or soft surfaces, a household cleaner, a care product, a wash care product, a
15 laundry care product, a room fragrancener, and air freshener, a conditioner, a colorant, a fabric conditioner, a conditioning substrate, a pharmaceutical, a crop protection product, a polish, a food, a cosmetic product, a fertilizer, a building material, an adhesive, a bleach, a decalcifier, floorcare product, cookercare product, leathercare product or furniture care product, a scourer, a disinfectant, a fragrancener, a mould remover and/or a precursor of the
20 aforementioned products.

The consumer product may be a cleaning product, such as:-

Toilet cleaners or lavatory cleaners, in other words, products for cleaning lavatory bowls and
25 urinals, these products being supplied preferably in the form of powders, blocks, tablets or liquids, preferably gels. Besides other typical ingredients such as surfactants, they generally include organic acids e.g., citric acid and/or lactic acid) or sodium hydrogen sulfate, amidosulfuric acid or phosphoric acid for removing limescale or urine scale;

30 Pipe-cleaning products or drain cleaners. These are typically strongly alkaline products which serve in general to remove pipe blockages comprising organic materials-such as hair, fat, food residues, soap deposits, and the like. Additions of Al powder or Zn powder may serve for the formation of H₂ gas with an effervescence effect. Possible ingredients are commonly alkalis, alkaline salts, oxidizing agents, and neutral salts. Supply forms in powder form

preferably also include sodium nitrate and sodium chloride. Pipe-cleaning products in liquid form may preferably also include hypochlorite. There are also enzyme-based drain cleaners as well. Acidic products are likewise possible;

- 5 Universal or all-purpose or general-purpose cleaners. These are cleaners which can be used universally for all hard surfaces in the household and in commerce that can be wiped down wet or damp. Generally speaking, they are neutral or slightly alkaline or slightly acidic products, especially liquid products. All-purpose or general-purpose cleaners generally contain surfactants, builders, solvents and hydrotropes, dyes, preservatives, and the like; All-
10 purpose cleaners with special disinfectant properties. They additionally include active antimicrobial ingredients (e.g., aldehydes, alcohols, quaternary ammonium compounds, amphoteric surfactants, triclosan);

- Sanitary cleaners. These are products for cleaning in bath and toilet. The alkaline sanitary
15 cleaners are used preferably for removing fatty soiling, whereas the acidic sanitary cleaners are employed in particular, for removing limescale. Sanitary cleaners advantageously also have a considerable disinfectant action, particularly the strongly alkaline sanitary cleaners that contain chlorine;

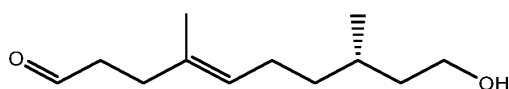
- 20 Oven cleaners or grill cleaners which may be supplied in the form of gels or foam sprays. They generally serve for removing burnt-on or carbonized food residues. Oven cleaners are preferably given a strongly alkaline formulation using, for example, sodium hydroxide, sodium metasilicate, 2-aminoethanol. In addition, they generally contain anionic and/or nonionic surfactants, water-soluble solvents, and, in some cases, thickeners such as polycarboxylates
25 and carboxymethylcellulose;

- Glass cleaners and window cleaners. These products serve preferably to remove dirt, especially greasy dirt, from glass surfaces. Preferably they contain compounds such as anionic and/or nonionic surfactants (in particular, up to 5% by weight), ammonia and/or
30 ethanolamine (in particular, up to 1% by weight), ethanol and/or 2-propanol, glycol ethers (in particular, 10-30% by weight), water, preservatives, dyes, anti-misting agents and the like; and

The consumer product may be a cosmetic product, for example (a) cosmetic skincare products, especially bath products, skin washing and cleansing products, skincare products, eye makeup, lip care products, nail care products, intimate care products, foot care products; or (b) cosmetic products with specific effects, especially sunscreens, tanning products, depigmenting products, deodorants, antiperspirants, hair removers, shaving products, perfumes; (c) cosmetic dental-care products, especially dental and oral care products, tooth care products, cleaners for dental prostheses, adhesives for dental prostheses; or (c) cosmetic hair care products, especially hair shampoos, hair care products, hair setting products, hair-shaping products, and hair colouring products.

The invention is now further described with reference to the following non-limiting examples. Variations and modifications as will be readily apparent to those skilled in the art are intended to be within the scope of the present invention as defined in and by the appended claims.

Example 1: (S,E)-10-hydroxy-4,8-dimethyldec-4-enal



Example 1a: (3S)-5-(3,3-dimethyloxiran-2-yl)-3-methylpentan-1-ol:

A flask under nitrogen was charged at room temperature (r.t.) with (S)-3,7-dimethyloct-6-en-1-ol (15.627 g, 18.3 mL, 1 Eq, 100.00 mmol), sodium carbonate (3.71 g, 0.35 Eq, 35.000 mmol) and Toluene (76 mL) and the mixture cooled to 15°C (ice bath). The mixture was then treated dropwise over 3 h with a solution of peracetic acid in acetic acid (26.41 g, 23.06 mL, 36 Wt%, 1.25 Eq, 125.00 mmol) while keeping the temperature below 25°C. After addition, the mixture was stirred at r.t. for 1 h then poured onto saturated aqueous Na₂CO₃ solution (100ml), extracted with MTBE (Methyl tert-butyl ether) (2x 100 mL), washed with brine (100 mL), dried over MgSO₄, filtered, concentrated and finally dried at r.t. and 0.18 mbar to give (3S)-5-(3,3-dimethyloxiran-2-yl)-3-methylpentan-1-ol (17.21 g, quantitative yield) as a colorless liquid.

¹H NMR (400 MHz, CDCl₃, 298 K, mixture of diastereomers) δ (ppm) = 3.81 - 3.61 (m, 2H), 2.77 - 2.67 (m, 1H), 1.71 - 1.35 (m, 8H), 1.33 (s, 3H), 1.28 (s, 3H), 0.97 - 0.91 (3H).
¹³C NMR (101 MHz, CDCl₃, 298 K, mixture of diastereomers) δ (ppm) = 64.7, 64.7, 61.0, 58.3, 39.8, 39.6, 33.8, 33.7, 29.4, 29.2, 26.4, 26.2, 24.9, 19.7, 19.5, 18.7, 18.7.

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Example 1b:

(3S)-3,7-dimethyloct-7-ene-1,6-diol: A flask under nitrogen was charged at room temperature (r.t.) with (3S)-5-(3,3-dimethyloxiran-2-yl)-3-methylpentan-1-ol (17.21 g, 1 Eq, 99.90 mmol) and Toluene (200 mL). The mixture was then treated with triisopropoxyaluminum (40.81 g, 2 Eq, 199.8 mmol) at r.t. then heated to reflux and stirred for 22 h. The resulting mixture was poured onto 4M aqueous NaOH solution (100 mL), extracted with MTBE (Methyl tert-butyl ether) (2x 100 mL), washed with brine (100 mL), dried over MgSO₄, filtered and concentrated. The crude was purified bulb-to-bulb distillation in a Kugelrohr apparatus (oven at 175-190°C, 0.065 mbar) to give (3S)-3,7-dimethyloct-7-ene-1,6-diol (15.00 g, 80% yield, 92% GC-purity) as a colorless liquid.

¹H NMR (400 MHz, CDCl₃, 298 K, mixture of diastereomers) δ (ppm) = 4.92 (tt, J = 1.0, 1.8 Hz, 1H), 4.83 (s, 1H), 4.02 (br d, J = 5.1 Hz, 1H), 3.76 - 3.56 (m, 2H), 2.31 - 2.20 (m, 1H), 2.16 (br d, J = 11.0 Hz, 1H), 1.72 (s, 3H), 1.67 - 1.02 (m, 7H), 0.91 (dd, J = 1.5, 6.6 Hz, 3H).

¹³C NMR (101 MHz, CDCl₃, 298 K, mixture of diastereomers) δ (ppm) = 147.6, 147.5, 111.1, 110.9, 76.3, 75.9, 60.8, 39.7, 39.7, 32.7, 32.5, 32.2, 32.1, 29.5, 29.2, 19.7, 19.7, 17.6, 17.4.

α_D = -6.599° mL / (g · dm) (25°C in EtOH)

Example 1c:

(S,E)-10-hydroxy-4,8-dimethyldec-4-enal: A flask under nitrogen was charged at room temperature with (3S)-3,7-dimethyloct-7-ene-1,6-diol (7.00 g, 1 Eq, 40.6 mmol) and 3,6,9,12-tetraoxatetradeca-1,13-diene (triethylene glycol divinyl ether) (19.7 g, 19.9 mL, 2.4 Eq, 97.5 mmol). After 5 minutes, the mixture was treated with Palladium (1,10-phenanthroline) acetate (164 mg, 0.01 Eq, 406 μ mol) and then heated to 68°C internal temperature (80°C oil-bath temperature) for 40 h. The reaction mixture was then heated to 138°C internal temperature

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(160°C oil-bath temperature) for 40 min. The resulting mixture was then cooled to below 50°C and treated successively with water (20.3 mL), Acetone (13.2 mL) and 2N aqueous HCl solution (2.03 mL) and stirred at 25-50°C for 30 min. The mixture was finally diluted with EtOAc (ethyl acetate) (100 mL), filtered to remove solids, poured onto iced water (100 mL),
5 extracted with EtOAc (2x 100 mL), washed with brine (100 mL), dried over MgSO₄, filtered and concentrated. The crude was purified by column chromatography on silica gel to give (*S,E*)-10-hydroxy-4,8-dimethyldec-4-enal (3.80 g, 43% yield, 92% GC-purity) as a pale yellow liquid.

10 GC-MS

¹H NMR (400 MHz, CDCl₃, 298 K) δ (ppm) = 9.75 (t, *J* = 2.1 Hz, 1H), 5.19 - 5.11 (m, 1H), 3.75 - 3.61 (m, 2H), 2.56 - 2.48 (m, 2H), 2.39 - 2.29 (m, 2H), 2.10 - 1.92 (m, 2H), 1.67 - 1.11 (m, 8H), 0.91 (d, *J* = 6.6 Hz, 3H).

15

¹³C NMR (101 MHz, CDCl₃, 298 K) δ (ppm) = 202.9, 132.8, 125.8, 61.0, 42.1, 39.8, 37.0, 31.9, 29.0, 25.3, 19.5, 16.1.

GC/MS (EI): *m/z* (%): 180 (2, [M-H₂O]⁺⁺), 162 (6), 136 (17), 121 (66), 93 (52), 81 (81), 67
20 (54), 55 (100), 41 (96).

$\alpha_D = -5.833^\circ \text{ mL} / (\text{g} \cdot \text{dm})$ (25°C in EtOH)

The tonality of the odour was assessed by a skilled panelist in a 1% ethanolic solution on a
25 paper blotter. Odour description: floral, muguet, rosy, aldehydic, metallic.

Example 2: (*R,E*)-10-hydroxy-4,8-dimethyldec-4-enal

Was prepared in the same way as the corresponding (*S,E*)-isomer, as described in Example
30 1 but starting from (*R*)-3,7-dimethyloct-6-en-1-ol to give (*R,E*)-10-hydroxy-4,8-dimethyldec-4-enal as a pale yellow liquid. All the analytical data was identical to that of its enantiomer (from Example 1), except:

$\alpha_D = 4.869^\circ \text{ mL} / (\text{g} \cdot \text{dm})$ (23°C in EtOH)

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The tonality of the odour was assessed by skilled panelists in a 1% ethanolic solution on a paper blotter. Odour description: aldehydic, hot iron, metallic, sharp, thin floral, slightly muguet.

5

Example 3: Activation of OR10J5 by (S,E)-10-hydroxy-4,8-dimethyldec-4-enal (Substance from Example 1) or (R,E)-10-hydroxy-4,8-dimethyldec-4-enal (Substance from Example 2)

To create the expression plasmid for OR10J5 the human OR10J5 gene with an optimized C-terminus (DNA sequence SEQ ID NO: 1 and amino acid sequence SEQ ID NO: 2) was
10 synthesized by a DNA synthesis service provider (BioCat GmbH, Germany) and inserted into pcDNA3.1(+) (Invitrogen, MA, USA) downstream of the CMV promoter sequence (SEQ ID NO: 3) and before the bgh terminator sequence (SEQ ID NO: 4). The synthetic OR10J5 nucleotide sequence further contained at its 5'-end a nucleotide sequence encoding a signal
15 peptide (mmLucy-FLAG-rho) (SEQ ID NO 5 and 6). This plasmid thus contains a constitutively expressed OR gene.

Expression of the OR10J5 genes was performed in HEK293T cells that had been stably transfected with a DNA sequence coding for functional variants of the human RTP1S (V227I,
20 SEQ ID NO: 7 and 8) and RTP2 (L220R, SEQ ID NO: 9 and 10). These cells were seeded into polyethyleneimine coated 96-well plates (100µl/well) at a density of 10,000 cells/well and grown at 37°C in presence of 5% CO₂ for 24 h.

0.625 µg of the OR10J5 expression plasmid, 1µg of the empty pcDNA3.1(+) vector and 1 µg
25 of pGL4.29 (Promega) harbouring the CRE-inducible luciferase were diluted in 0.25 ml OptiMEM medium (Gibco™, ThermoFisher Scientific, MA, USA). In parallel 15 µl Lipofectamine 2000 (Invitrogen) was diluted in 0.25 ml OptiMEM medium and after 5 min pre-incubation, the two mixtures were combined to prepare the transfection mixture, which was incubated for an additional 25 min.

30

50 µl of growth medium was replaced with fresh DMEM containing 9% foetal bovine serum (FBS). The pre-incubated transfection mixture was diluted to 5.5 ml in OptiMEM medium and 50 µl of the diluted mixture was added per well (total volume 150 µl). Cells were further

incubated for 24 h at 37°C in presence of 5% CO₂ to allow for DNA uptake and expression of OR10J5.

Activation of OR10J5 by (S,E)-10-hydroxy-4,8-dimethyldec-4-enal (Substance from Example 1) or (R,E)-10-hydroxy-4,8-dimethyldec-4-enal (Substance from Example 2) was measured by removal of 100 µl growth medium and addition of 50 µl DMEM containing 9% FBS, 1% DMSO, and different concentrations of the two test substances. After incubation for 4.5 h, the cells were lysed using 20µl passive lysis buffer (Promega) and the luciferase signal, which is induced based on OR-dependent cAMP production, was measured.

Potency of the two tested OR10J5 ligands is expressed as the EC20% value, which is the concentration that leads to a 20 % increase of the luciferase activity relative to the positive control (100µM, (4E)-9-hydroxy-5,9-dimethyl-4-Decenal). (S,E)-10-hydroxy-4,8-dimethyldec-4-enal (Substance from Example 1) has an EC20% value of 10.1 µM while (R,E)-10-hydroxy-4,8-dimethyldec-4-enal (Substance from Example 1) has an EC20% value of 24.4 µM. Because of the difference in EC20%, a much lower concentration of the (S,E)-isomer (Example 1) is needed to activate the receptor compared to the concentration needed of the (R,E)-isomer (Example 2). Figures 2 and 3 show the response of both test compounds graphically.

OR10J5 with an optimized C-terminus DNA sequence (SEQ ID NO 1):

```
ATGAAGAGAAAGAACTTCACAGAAGTGTGAGAATTCATTTTCTTGGGATTTTCTAGCTTTG
GAAAGCATCAGATAACCCTCTTTGTGGTTTTTCCTAACTGTCTACATTTTAACTCTGGTTGC
TAACATCATCATTGTGACTATCATCTGCATTGACCATCATCTCCACACTCCCATGTATTTT
TTCCTAAGCATGCTGGCTAGTTCAGAGACGGTGTACACACTGGTCATTGTGCCACGAAT
GCTTTTGAGCCTCATTTTTTCATAACCAACCTATCTCCTTGGCAGGCTGTGCTACACAAAT
GTTCTTTTTTGTATCTTGGCCACTAATAATTGCTTCCTGCTTACTGCAATGGGGTATGAC
CGCTATGTGGCCATCTGCAGACCCCTGAGATACACTGTCATCATGAGCAAGGGACTATG
TGCCCAGCTGGTGTGTGGGTCCTTTGGCATTGGTCTGACTATGGCAGTTCTCCATGTGA
CAGCCATGTTCAATTTGCCGTTCTGTGGCACAGTGGTAGACCACTTCTTTTGTGACATTT
ACCCAGTCATGAAACTTTCTTGCATTGATACCACTATCAATGAGATAATAAATTATGGTGT
AAGTTCATTTGTGATTTTTGTGCCCATAGGCCTGATATTTATCTCCTATGTCCTTGTGATC
TCTTCCATCCTTCAAATTGCCTCAGCTGAGGGCCGGAAGAAGACCTTTGCCACCTGTGT
CTCCACCTCACTGTGGTTATTGTCCACTGTGGCTGTGCCTCCATTGCCTACCTCAAGC
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CGAAGTCAGAAAGTTCAATAGAAAAAGACCTTGTTCTCTCAGTGACGTACACCATCATCA
CTCCCTTGCTGAACCCTGTTGTTTACAGTCTGAGGAACAAAGAAGTTAAAGATGCCTTAA
AGAGGTTGCTAAAGAGAAAGTGCTGCTGA

- 5 OR10J5 with an optimized C-terminus amino acid sequence (SEQ ID NO 2):
MKRKNFTEVSEFIFLGFSSFGKHQITLFVVFLTVYILTLVANIIIVTIICIDHHLHTPMYFFLSMLAS
SETVYTLVIVPRMLLSLIFHNQPISLAGCATQMFFFVILATNNCFLLTAMGYDRYVAICRPLRYT
VIMSKGLCAQLVCGSFGIGLTMAVLHVTAMFNLFPFCGTVVDHFFCDIYPVMKLSCIDTTINEIIN
YGVSSFVIFVPIGLIFISYVLVISSILQIASAEGRKKTATCVSHLTVVIVHCGCASIAYLKPKSES
10 SIEKDLVLSVTYTIITPLLNPVVYSLRNKEVKDALKRLLKRKCC

CMV Promoter DNA sequence (SEQ ID NO 3)

- GTTGACATTGATTATTGACTAGTTATTAATAGTAATCAATTACGGGGTCATTAGTTCATA
GCCCATATATGGAGTTCCGCGTTACATAACTTACGGTAAATGGCCCGCCTGGCTGACCG
15 CCCAACGACCCCCGCCATTGACGTCAATAATGACGTATGTTCCCATAGTAACGCCAAT
AGGGACTTTCCATTGACGTCAATGGGTGGAGTATTACGGTAAACTGCCCACTTGGCAG
TACATCAAGTGTATCATATGCCAAGTACGCCCCCTATTGACGTCAATGACGGTAAATGGC
CCGCTGGCATTATGCCAGTACATGACCTTATGGGACTTTCTACTTGGCAGTACATCT
ACGTATTAGTCATCGCTATTACCATGGTGATGCGGTTTTGGCAGTACATCAATGGGCGTG
20 GATAGCGGTTTGACTCACGGGGATTTCCAAGTCTCCACCCCATTGACGTCAATGGGAGT
TTGTTTTGGCACCAAAATCAACGGGACTTTCCAAAATGTCGTAACAACCTCCGCCCCATTG
ACGCAAATGGGCGGTAGGCGTGTACGGTGGGAGGTCTATATAAGCAGAGCTC

bgh terminator DNA sequence (SEQ ID NO 4)

- 25 CTGTGCCTTCTAGTTGCCAGCCATCTGTTGTTTGCCCCTCCCCCGTGCCTTCCTTGACC
CTGGAAGGTGCCACTCCCACTGTCCTTTCCTAATAAAATGAGGAAATTGCATCGCATTGT
CTGAGTAGGTGTCATTCTATTCTGGGGGGTGGGGTGGGGCAGGACAGCAAGGGGGAG
GATTGGGAAGACAATAGCAGGCATGCTGGGGATGCGGTGGGCTCTATGG

- 30 mmLucy-FLAG-rho DNA sequence (SEQ ID NO 5)

ATGAGCCACCAGATCCTGCTGCTCCTGGCCCTGCTGACCCTAGGCCTGGCTGATTACAA
GGACGACGACGATAAGATCGAATTGATGAACGGGACCGAGGGCCCAAACTTCTACGTG
CCTTTCTCCAACAAGACGGGCGTGGTGGAATTC

mmLucy-FLAG-rho amino acid sequence (SEQ ID NO 6)

MSHQILLLLALLTLGLAMDYKDDDDKMNGTEGPNFYVPFSNKTGVVEF

RTP1S(V227I) DNA sequence (SEQ ID NO 7)

5 ATGTGTAAAAGCGTGACCACAGATGAGTGGAAGAAAGTCTTCTATGAGAAGATGGAGGA
GGCAAAGCCGGCTGACAGCTGGGACCTCATCATAGACCCCAACCTCAAGCACAAATGTG
CTGAGCCCTGGTTGGAAGCAGTACCTGGAATTGCATGCTTCAGGCAGGTTCCACTGCTC
CTGGTGCTGGCACACCTGGCAGTCGCCCTACGTGGTCATCCTCTTCCACATGTTCCCTGG
ACCGCGCCCAGCGGGCGGGCTCGGTGCGCATGCGCGTCTTCAAGCAGCTGTGCTATG
10 AGTGCGGCACGGCGCGGCTGGACGAGTCCAGCATGCTGGAGGAGAACATCGAGGGCC
TGGTGGACAACCTCATCACCAGCCTGCGCGAGCAGTGCTACGGCGAGCGTGGCGGCC
AGTACCGCATCCACGTGGCCAGCCGCCAGGACAACCGGCGGCACCGCGGAGAGTTCT
GCGAGGCCTGCCAGGAGGGCATCGTGCACTGGAAGCCCAGCGAGAAGCTGCTGGAGG
AGGAGGCGACCACCTACACCTTCTCCCGGGCGCCCAGCCCCACCAAGTCGCAGGACCA
15 GACGGGCTCAGGCTGGAAGTTCTGCTCTATCCCCTGGTGCTTGTGTTTGGGCCACGGTCC
TGCTGCTGATCATCTACCTGCAGTTCTCTTCCGTAGCTCCATCTAA

RTP1S(V227I) amino acid sequence (SEQ ID NO 8)

MCKSVTTDEWKKVFYEKMEEAKPADSWDLIIDPNLKHNVLSPGWKQYLELHASGRFHCSW
20 CWHTWQSPYVVILFHMFLDRAQRAGSVRMRVFKQLCYECGTARLDESSMLEENIEGLVDN
LITSLREQCYGERGGQYRIHVASRQDNRRHRGEFCEACQEGIVHWKPSEKLLLEEATTYT
FSRAPSPTKSQDQTGSGWNFCSIPWCLFWATVLLLIYLQFSFRSSI

RTP2(L220R) DNA sequence (SEQ ID NO 9)

25 ATGTGTACCAGCTTGACCACTTGTGAGTGGAAGAAAGTCTTCTATGAGAAGATGGAGGT
GGCAAAGCCAGCGGACAGCTGGGAGCTCATCATAGACCCCAACCTCAAGCCCAGTGAG
CTGGCCCCCTGGCTGGAAGCAGTACCTGGAGCAGCACGCCTCAGGCAGGTTCCACTGCT
CCTGGTGCTGGCACACCTGGCAGTCTGCCCATGTGGTCATCCTCTTCCACATGTTCCCTG
GACCGCGCCCAGCGGGCGGGCTCGGTGCGCATGCGCGTCTTCAAGCAGCTGTGCTAT
30 GAGTGCGGCACGGCGCGGCTGGACGAGTCCAGCATGCTGGAGGAGAACATCGAGGGC
CTGGTGGACAACCTCATCACCAGCCTGCGCGAGCAGTGCTACGAGGAGGATGGTGGCC
AGTACCGCATCCACGTGGCCAGCCGCCGACAGCGGGCCGCATCGTGCAAGTTCT
GTGAGGCCTGCCAGGAGGGCATCGTTCACTGGAAGCCCAGCGAGAAGCTGCTGGAGG
AGGAGGTGACCACCTACACCTCTGAAGCCTCCAAGCCGAGGGCCCCAGGCGGGATCCG

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GCTACAACCTTCTTGTCTCTTCGCTGGTGCCTCTTCTGGGCCTCTCTCTGCCTGCTCGTTG
TTTACCTGCAGTTCTCCTTCCGCAGTCCTGCCTTCTTTTAG

RTP2(L220R) amino acid sequence (SEQ ID NO 10)

5 MCTSLTTCEWKKVFYEKMEVAKPADSWELIIDPNLKPSELAPGWKQYLEQHASGRFHCSW
CWHTWQSAHVILFHMFLDRAQRAGSVRMRVFKQLCYECGTARLDESSMLEENIEGLVDN
LITSLREQCYEEDGGQYRIHVASRPDSGPHRAEFCEACQEGIVHWKPSEKLEEEVTTYT
SEASKPRAQAGSGYNFLSLRWCLFWASLCLLVVYLQFSFRSPAFF

10 Example 4

A powdery floral cologne, with a fresh fruity top note and powdery ambery dry down note.

(S,E)-10-hydroxy-4,8-dimethyldec-4-enal adds a transparent floral character to the dry down, clearly beneficial to the overall hedonic of the accord, and improves its radiant diffusion while

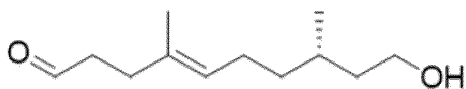
(R,E)-10-hydroxy-4,8-dimethyldec-4-enal adds a transparent floral character with a slightly

15 metallic aldehydic facet which impacts negatively the hedonic balance of the accord.

			to apply at 10 % Alc	
	ingredient name	ref	with "S"	with "R"
	BELAMBRE 50%/IPM	28		
259854-70-1	COSMONE	12		
477218-42-1	SERENOLIDE	45		
134-28-1	GUAIYL ACETATE	40		
105-87-3	GERANYL ACETATE SYNTHETIC	25		
60-12-8	PHENYL ETHYL ALCOHOL	75		
1637294-12-2	NYMPHEAL	8		
6790-58-5	AMBROFIX	1		
105-95-3	ETHYLENE BRASSYLATE	80		
24851-98-7	CEPIONATE	150		
1205-17-0	TROPIONAL	25		
3025-30-7	ETHYL DECADIENOATE	3		
103-05-9	DIMETHYL PHENYL ETHYL CARBINOL	15		
120-57-0	HELIOTROPINE CRYSTALS	4		
928-96-1	HEXENOL-3-CIS @ 10% DPG	3		
120-72-9	INDOLE PURE @ 10% DPG	9		
488-10-8	JASMONE CIS @ 10% DPG	15		
78-70-6	LINALOOL SYNTHETIC	25		
32480-08-3	DIHYDRO FARNESAL	20		
59056-93-8	GEORGYWOOD	55		
118-58-1	BENZYL SALICYLATE	25		
	(S,E)-10-hydroxy-4,8-dimethyldec-4-enal		50	
	(R,E)-10-hydroxy-4,8-dimethyldec-4-enal			50
25265-71-8	DIPROPYLENE GLYCOL	337	287	287
	Total	1000	1000	1000

Claims

1. (S,E)-10-hydroxy-4,8-dimethyldec-4-enal according to the formula (I)



5

2. A perfume composition comprising a compound according to claim 1 and at least one other perfume ingredient.

10 3. A perfume composition according to claim 2 wherein the compound of formula (I) is in enantiopure form.

4. A perfume composition according to claim 2, comprising (R,E) 10-hydroxy-4,8-dimethyldec-4-enal, wherein the compound according to claim 1 is in enantioenriched form.

15

5. A perfume composition according to claim 4 wherein the compound according to formula (I) is present in at least 60 % enantiomeric excess.

20 6. A perfume composition according to any of the claims 2 to 5, comprising (S,Z)-10-hydroxy-4,8-dimethyldec-4-enal.

7. A perfume composition according to any of the claims 2 through 6 comprising at least one perfume ingredient selected from the group consisting of 2-cyclohexylidene-2-phenylacetonitrile, e.g. PEONILE™; 4-(octahydro-4,7-methano-5H-inden-5-ylidene)butanal, e.g. DUPICAL™; and 4-methyl-2-(2-methylpropyl)tetrahydro-2H-pyran-4-ol, e.g. FLOROSA™; methyl 2-(2-hexyl-3-oxocyclopentyl)acetate, e.g. HEDIONE™; Natural ingredients, such as those selected from Iris, Mimosa, Ylang, Bergamot, jasmine and rose; Synthetic muguet fragrance ingredients such as Cyclamen aldehyde (103-95-7), Hydroxycitronellal (107-75-5), Hydroxy Citronellal diethyl acetal (7779-94-4), Silvial (6658-48-6), Bourgeonal (18127-01-0), Florhydral (125109-85-5), and Cyclemax (7775-00-0); Floral ingredients of the rose type such as ethyl phenyl alcohol (60-12-8), Dimethyl phenyl ethyl

30

carbinol (103-05-9), Citronellol (106-22-9), Rhodinol (106- 22-9), Acet. DMBC (151-05-3), Geraniol (106-24-1), Nerol (106-25-2), Nerolidol (7212-44-4), Mefrosol (55066-48-3), Peomosa (19819-98-8), citronellyl iso butyrate (97-89-2), and Majantol (103694-68-4); Floral ingredients of the freesia type such as Linalool (78-70-6), Rossitol (215231-33-7), and

5 Coranol (83926-73-2); Floral ingredients of the lilac type such as Ale. Cinnamic alcohol (104-54- 1), propyl phenyl alcohol (122-97-4) and Terpeneol (8000-41-7); Floral ingredients of the jasmine type such as benzyl acetate (140-11-4), Hedione (24851-98-7), Hexyl Cinnamic aldehyde (101-86-0), and Amyl Cinnamic aldehyde (122-40-7); Floral ingredients of the muguet type such as Super Muguet (26330-65- 4), Hydroxycitronellal dimethyl acetate (141-

10 92-4), Magnol (92046-49-6), Mugetanol (63767-86-2), Mugesia (56836-93-2), Indole (120-72-9), and Indolene (67860-00-8); Green ingredients such as cis 3 Hexenol (928-96-1), phenyl acetic aldehyde (122-78-1), Maceal (67845-30-1), cis 3 hexenyl acetate (3681-71-8), Acetal CD (29895-73-6), Precarone (74499-58-4), Mefranal (55066-49-4), Elintaal (40910-49-4), Glycolieral (68901-32-6), and Coranol (83926-73-2); Fresh ingredients such as C11

15 undecelenic aldehyde (112-45-8), C11 undecylic aldehyde (112-44-7), C 10 aldehyde (112-31-2), C 12 MNA aldehyde (110-41-8), Tropional (1205-17-0), Citral (5392-40-5), Oxyde de Limette (73018- 51-6), Florhydral (125109-85-5), Floralozone (67634-15-5), Dihydro Farnesal (51513-58-7), Dihydrofarnesol (51411-24-6), Adoxal (141-13-9), Citronellyl Oxyacetaldehyde (7492-67-3), Floral super (71077-31-1) and Dodecenal (4826-62-4); Woody ingredients such

20 as Irisone (8013-90-9) and methyl Ionone (1335-46-2); Powdery ingredients such as Fixolide (21145-77-7), Thibetolide (106-02-5) , Heliotropine (120-57-0) and Vanilline (121-33-5); Diverse harmonic floral ingredients such as Phixia (107-75-5), Farnesal (19317-11- 4), Farnesyle acetate (29548-30-9), Rhodinyl acetate (141-11-7), Cydomethylene Citronellol (15760-18-6), Mayol (5502-75-0), Myraldyl acetate (72403-67-9), and Melonia (3613-30-7);

25 and mixtures thereof.

8. A perfume composition according to any of the claims 2 through 7 that is free or substantially free of Lyril or Dupical.

30 9. The use of a compound according to the formula (I) or a perfume composition as defined in any of the claims 2 through 8 for masking or reducing the or one or several unpleasant odour impressions of one or several unpleasantly smelling substances, and/or for enhancing the or one or several pleasant odour impressions of one or several pleasantly smelling substances.

10. The use according to claim 9 wherein the pleasant odour impression is a muguet odour.

11. A consumer product comprising a compound according to formula (I) or a perfume
5 composition according to any of the claims 2 through 8.