

**PALM OIL-BASED WAX COMPOSITION, ENCAUSTIC MEDIUM
DERIVED THEREFROM AND METHOD FOR PRODUCING THE SAME**

FIELD OF INVENTION

- 5 The present invention relates to a wax composition, encaustic medium derived therefrom and method for producing the same. In particular, the encaustic medium is suitable for use in creation of artwork such as hot wax painting, collage or sculpturing.

10 **BACKGROUND OF THE INVENTION**

- For the purpose of the present invention, the term 'encaustic medium' herein shall be understood as medium comprising wax which is used in the presence of heat to create artwork such as painting, collage or sculpture. For instance, encaustic painting uses encaustic medium as paint, in which the medium is melted and subsequently hardened
- 15 to form a layer with aesthetic feature on a substrate. Generally, composition of the encaustic medium for different artwork can be adjusted based on desired aesthetic effect. For instance, a mixture of beeswax and dammar gum is able to provide painting with glossy finish. Thus far, there is no found encaustic medium derived from palm oil-based wax being used as encaustic medium to provide non-glossy finish in artwork.
- 20 The present invention provides such a product and method for producing the same.

SUMMARY OF THE INVENTION

The present invention provides a vegetable-based wax composition.

- 25 The present invention provides an encaustic medium capable of producing non-glossy finish on an artwork.

- In the preferred embodiment, the present invention is a wax composition for use as encaustic medium comprising: a palm oil-based wax mixture in an amount of 1 to
- 30 69% by weight of total wax composition, in which the wax mixture comprises at least

partially saturated fatty acid in an amount of 60 to 99.8% by weight of total wax mixture; fatty alcohol in an amount of 0.1 to 20% by weight of total wax mixture; and glyceride in an amount of 0.1 to 20% by weight of total mixture; a non-palm oil-based wax in an amount of 25 to 98.5% by weight of total wax composition; and a resin in
5 an amount of 0.5 to 50% by weight of total wax composition.

In one of the preferred embodiment, the wax composition further comprises one or more pigment or dye dispersed or dissolved therein.

10 Preferably, the dispersed pigment or dye has an average particle size of 0.01 μm to 2 mm.

Advantageously, the palm oil-based wax mixture is derived from at least partially hydrogenated palm oil having iodine value of less than 1.

15

Advantageously, the non-palm oil-based wax is one or more of soy wax, canola wax, candelilla wax, carnauba wax, sunflower wax, maize wax, rice bran wax, jojoba wax, ouricury wax, sugar cane wax and coconut wax.

20 Advantageously, the resin is one or more of rosin, damar resin and amber.

The wax composition as aforementioned can be use in, but not limited to, encaustic painting, sculpturing or collage.

25 There present invention includes a method for producing the wax composition comprising the steps of: melting the palm oil-based wax mixture; and mixing the non-palm oil-based wax and resin at a temperature of 55 to 100 °C with the melted palm oil-based wax to obtain the wax composition.

30 In one of the preferred embodiment, the method further comprises a step of

solidifying the wax composition at a temperature of 40 to 70 °C.

In one of the preferred embodiment, the method further comprises a step of dispersing or dissolving one or more pigment or dye into the wax composition.

5

DETAILED DESCRIPTION OF THE INVENTION

The present invention relates to a wax composition, encaustic medium derived therefrom and method for producing the same.

10 By way of examples, embodiments of the invention will now be described in detailed. However, it is to be understood that limiting the description to the preferred embodiments of the invention and to the drawings is merely to facilitate discussion of the present invention and it is envisioned that those skilled in the art may devise various modifications without departing from the scope of the appended claim.

15

There is provided a wax composition for fabrication of an encaustic medium. 65 g of palm oil-based wax mixture was first heated to its melting temperature, followed by melting 25 g of the carnauba wax and 10 g of the rosin therein at a raised temperature of 90°C. The mixing process was conducted in the presence of continuous stirring to
20 achieve homogeneity. The molten wax composition herein is white to yellowish. Such molten wax composition has a viscosity between 2 to 11 centipoise (cP) at 100 °C. Such wax composition can be readily used or formed as solid for future use. To solidify, the wax composition was poured into molds or containers and left to cool at room temperature and eventually solidify between 40 and 60 °C. The wax
25 compositions herein has a cloud point at 65 °C and congeal point between 1 and 5 °C below the melting point. The solid wax composition herein is white to yellowish. In accordance to the preceding description, in the case where molten wax composition is readily used, pigment or dyes can be directly added and being mixed therewith, provided the composition is kept above its melting point to prevent congealing or
30 hardening. in the case where the solid wax composition is used, the solid wax

composition has to be melted first.

It shall be noted that palm oil-based wax as set forth in the preceding description shall not be confused with carnauba wax, commonly known as palm wax. The palm oil-based wax mixture herein is preferably derived from refined, bleached and deodorized (RBD) palm oil. Advantageously, the palm oil is at least partially hydrogenated to have an iodine value of less than 1. In particular, the palm oil-based wax mixture used preferably comprises at least partially saturated fatty acid in an amount of 99% by weight of total wax mixture; fatty alcohol in an amount of 0.5% by weight of total wax mixture; and glyceride in an amount of 0.5% by weight of total mixture. Such wax mixture melts between 40 to 75 °C. Such high saturation of fatty acid in the palm oil results in low crystallinity during solidification thereby producing non-glossy or matte finish in an artwork.

In this example, the carnauba wax was mixed with the palm oil-based wax to produce a wax composition that gives non-glossy finish. It was found that the wax composition having the palm oil-based wax mixture in an amount of less than 70 % by weight of the total wax composition gave non-glossy appearance. On the contrary, wax composition having palm oil-based wax in an amount of more than 70 % by weight of the total wax composition gave glossy appearance. Such manipulation of wax composition is able to produce various range of possible finishing tone when use in combination with dyes. Further, the non-glossy finish is advantageous for use in multi-layered paintings and collages.

The wax composition may suitably include pigment or dye which either disperse or dissolve therein to produce different painting material. The amount of pigment or dye used depends on the desired colour value and intensity. Generally the wax composition comprises pigment or dye in an amount of from 0.1 to 40% by weight of the total wax composition. comprises one or more pigment or dye dispersed or

dissolved therein. More preferably, the dispersed pigment or dye has an average particle size of 0.01 μm to 2 mm.

Exemplary pigments or dyes include, but not limited to, black coloring matters such as carbon black, acetylene black, lamp black, ivory black, aniline black, iron black; yellow coloring matters such as yellow iron oxide, zinc yellow, cadmium yellow, mineral fast yellow, nickel titanium yellow, naples yellow, Naphthol Yellow S, Hansa Yellow G, Hansa Yellow 10G, Benzidine Yellow G, Benzidine Yellow GR, Quinoline Yellow Lake, Permanent Yellow NCG, Tartrazine Yellow; orange coloring matters such as molybdenum orange, cadmium orange, Chrome Vermilion, Permanent Orange GTR, Pyrazolone Orange, Vulcan Orange, Indanthrene Brilliant Orange RK, Benzidine Orange G, Indanthrene Brilliant Orange GK; red coloring matters such as red iron oxide, silver vermilion, Madder Lake, crimson lake, Permanent Red 4R, Lithol Red, Pyrazolone Red, Watchung Red Calcium Salt, Lake Red D, Brilliant Carmine 6B, eosine lake, Rhodamine Lake B, Alizarin Lake, Brilliant Carmine 3B, Quinacrydone Red, diketopyrrolopyrrole; brown coloring matters (such as umber, sienna, burnt umber, burnt sienna; violet coloring matters (such as manganese violet, cobalt violet, violet iron oxide, Fast Violet B, Methyl Violet Lake, Quinacrydone Violet; blue coloring matters such as prussian blue, ultramarine, cobalt blue, alkali blue lake, Victoria Blue Lake, phthalocyanine blue, metal-free phthalocyanine blue, partially chlorinated product of phthalocyanine blue, fast sky blue, Indanthrene Blue BC; green coloring matters such as Chrome Green, chromium oxide, Pigment Green B, Malachite Green Lake, Final Yellow Green G, phthalocyanine green, naphthol green; white coloring matters such as zinc white, titanium oxide, antimony white, zinc sulfate; fluorescent coloring matters such as inorganic fluorescent pigment, organic fluorescent pigment; metallic luster flake pigments such as leafing type or non-leafing type aluminum flake pigment, bronze flake pigment; pearl essences such as mica pearl pigment coated with titanium oxide, polyester glitter, fish scale white. The above-mentioned coloring matters can be used alone or in a combination of two or more kinds.

The encaustic medium prepared according to preceding description can be used for hot wax painting on various surface, including but not limited to paper, canvas and wood.

5

The encaustic medium prepared according to preceding description can also be used for wax sculpturing. It shall be noted that in the case where the encaustic medium is prepared for sculpturing, the amount of resin used shall be relatively larger so as to impart sufficient hardness in the final artwork.

10

CLAIMS

1. A wax composition for use as encaustic medium comprising:
 a palm oil-based wax mixture in an amount of 1 to 69 % by weight of total
 5 wax composition, in which the wax mixture comprises at least partially saturated fatty
 acid in an amount of 60 to 99.8 % by weight of total wax mixture; fatty alcohol in an
 amount of 0.1 to 20% by weight of total wax mixture; and glyceride in an amount of
 0.1 to 20% by weight of total mixture;
 a non-palm oil-based wax in an amount of 25 to 98.5 % by weight of total wax
 10 composition; and
 a resin in an amount of 0.5 to 50% by weight of total wax composition.
2. A wax composition according to claim 1 further comprises one or more
 pigment or dye dispersed or dissolved therein.
- 15 3. A wax composition according to claim 2, wherein the dispersed pigment or
 dye has an average particle size of 0.01 μm to 2 mm.
4. A wax composition according to claim 1 or 2, wherein the palm oil-based wax
 20 mixture is derived from at least partially hydrogenated palm oil having iodine value of
 less than 1.
5. A wax composition according to claim 1 or 2, wherein the non-palm oil-based
 wax is one or more of soy wax, canola wax, candelilla wax, carnauba wax, sunflower
 25 wax, maize wax, rice bran wax, jojoba wax, ouricury wax, sugar cane wax and
 coconut wax.
6. A wax composition according to claim 1 or 2, wherein the resin is one or more
 of rosin, damar resin and amber.