Alternatively, the substrate may be a non-smokeable material, for example, a comestible or scented product. Alternatively again, the substrate may be a smokeless product, for example, containing tobacco, a tobacco substitute, or a combination thereof. When the substrate is used, the flavorant is released from the supramolecular complex.

Where the substrate is a smokeable material containing tobacco and/or a tobacco substitute, the composition may be provided as a component of a traditional cigarette, or an electrically heated cigarette. For example, the smokeable material may comprise a cigarette paper or wrapper on which the supramolecular complex has been printed.

The present invention also provides a filter for a smoking article, wherein the filter comprises the supramolecular complex.

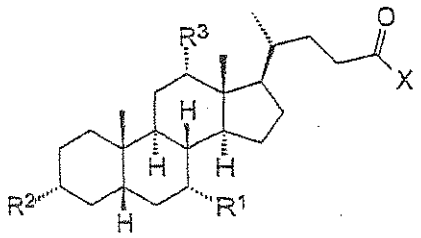
The invention further provides a method for controlling release of one or more flavorant compounds comprising at least one hydroxyl group or at least one aldehyde group, or both, from a substrate by combining the substrate with an effective amount of a supramolecular complex described herein to form a treated substrate. The treated substrate can then be heated or combusted to release the flavorant compound from the supramolecular complex. Alternatively, the treated substrate can be contacted with saliva, releasing the flavorant compound into the saliva

According to another aspect, there is provided a method for controlling release of one or more flavorant compounds comprising at least one hydroxyl group or at least one aldehyde group, or both, from a substrate, comprising:

combining the substrate with an effective amount of a supramolecular complex to form a treated substrate, wherein the supramolecular complex comprises:

one or more flavorant compounds comprising at least one hydroxyl group or at least one aldehyde group, or both, non-covalently associated with

a compound of Formula (I):



(I)

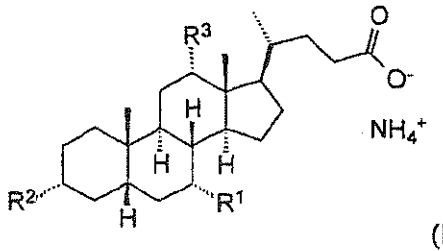
wherein R^1, R^2 and R^3 are each independently selected from -H, -OH, or -OR, where R is selected from straight or branched alkyl groups of five carbons or less; and

wherein X is OR^4, where R^4 is selected from hydrogen, or a straight or branched alkyl group of five carbons or less, or is NR^5R^6, where R^5 and R^6 are each independently selected from hydrogen, straight or branched alkyl groups of five carbons or less;

heating or combusting the treated substrate or contacting the treated substrate with saliva; and

releasing the flavorant compound from the supramolecular complex.

According to another aspect of the invention there is provided a method for forming a flavorant supramolecular complex which comprises combining a flavorant compound containing at least one hydroxyl or aldehyde group with a compound of Formula II:



(II)

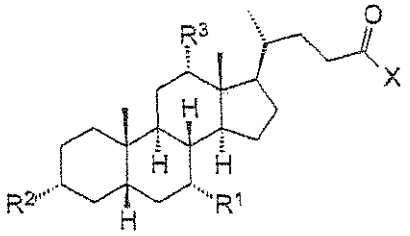
where R^1, R^2 and R^3 are each independently selected from -H, -OH, and -OR, where R is selected from straight or branched alkyl groups of five carbons or less. It is desirable that this combining includes mixing and heating the flavorant compound and the compound of Formula II for a time and at a temperature effective to form a supramolecular complex as described herein. The mixing can occur in the presence or absence of a solvent. Preferably, the heating occurs under an inert atmosphere.

According to another aspect, there is provided a composition comprising a non-smokeable material and a supramolecular complex,

wherein the non-smokeable material comprises a comestible product and the supramolecular complex comprises:

one or more flavorant compounds comprising at least one hydroxyl group or at least one aldehyde group, or both, non-covalently associated with

a compound of Formula (I):



(I)

wherein R^1, R^2 and R^3 are each independently selected from -H, -OH, or -OR, where R is selected from straight or branched alkyl groups of five carbons or less; and

wherein X is OR^4, where R^4 is selected from hydrogen, or a straight or branched alkyl

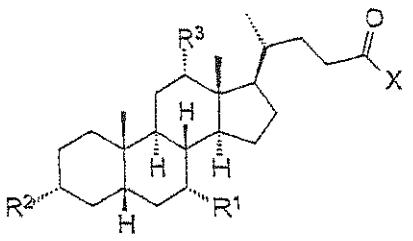
group of five carbons or less, or is NR^5R^6, where R^5 and R^6 are each independently selected from hydrogen, straight or branched alkyl groups of five carbons or less.

According to another aspect, there is provided a composition comprising a non-smokeable material and a supramolecular complex,

wherein the non-smokeable material comprises a smokeless composition comprising tobacco, a tobacco substitute, or a combination thereof and the supramolecular complex comprises:

one or more flavorant compounds comprising at least one hydroxyl group or at least one aldehyde group, or both, non-covalently associated with

a compound of Formula (I):



(I)

wherein R^1, R^2 and R^3 are each independently selected from -H, -OH, or -OR, where R is selected from straight or branched alkyl groups of five carbons or less; and

wherein X is OR^4, where R^4 is selected from hydrogen, or a straight or branched alkyl group of five carbons or less, or is NR^5R^6, where R^5 and R^6 are each independently selected from hydrogen, straight or branched alkyl groups of five carbons or less.

DETAILED DESCRIPTION

The flavorant supramolecular complex and compositions containing it described herein are desirable because they provide releasable flavor or aroma characteristics to substrates that are released as the substrates are consumed or used. At the same time, these complexes