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TOBACCO

Donald L. Roberts, Winston-Salem, N.C., assignor to R. J. Reynolds Tobacco Company, Winston-Salem, N.C., a corporation of New Jersey

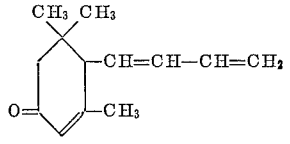
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8 Claims. (Cl. 131—17)

This invention relates to tobacco and has for an object the provision of a tobacco composition having an improved aroma and flavor.

It is well known in the tobacco art that the domestic tobaccos which are exemplified by burley, Maryland, flue-cured, bright leaf or Virginia tobaccos are low in flavor as compared with so-called oriental or aromatic tobaccos which are imported from Turkey, Greece, Bulgaria, Yugoslavia, Rhodesia and Russia. Accordingly, it has been common practice in the tobacco industry to prepare blends of domestic and oriental tobaccos in order to provide cigarettes which have desired flavor and aroma characteristics. Accordingly, it is a further object of this invention to provide a domestic tobacco which has an enhanced flavor and aroma.

An additional object of this invention is to provide a tobacco which has been treated in such manner as to impart an aroma which is pleasing to the smoker and may be described as a spicy, peppery aroma.

In accordance with one embodiment of this invention a domestic tobacco is provided to which has been added a small amount of 4-(4-oxo-2,6,6-trimethyl-2-cyclohexen-1-yl)-1,3-butadiene. The above chemical, herein referred to as compound I, may be represented by the following formula.



The chemical compound I indicated above can be synthesized by the selective reduction of 5-oxo-α-ionone to 5-oxo-α-ionol followed by dehydration of the 5-oxo-α-ionol.

A detailed description of the synthesis of compound I is as follows:

A. Alpha-ionone (100 grams) was treated with t-butyl chromate in carbon tetrachloride (325 grams t-butyl alcohol, 220 grams chromic anhydride, 200 milliliters acetic acid, 30 milliliters acetic anhydride and 1.4 liters of carbon tetrachloride). The mixture was kept at room temperature for six days in the dark, after which the reaction mixture was treated with excess oxalic acid. The carbon tetrachloride-water mixture was separated and the organic layer was extracted successively with water, sodium carbonate solution, and water. After drying and concentrating, the material was chromatographed. Chromatography of the reaction mixture gave α-ionone, 5-oxo-α-ionone (11.8 grams, recrystallized) and several side-products.

B. A 4-gram sample of 5-oxo-α-ionone was reduced with 400 milligrams of sodium borohydride in 500 milliliters of 50 percent aqueous methanol. After three hours the solution was treated with dilute alkali and extracted with ether. The residue from the ether solution was chromatographed on silicic acid and gave 3.8 grams of 5-oxo-α-ionol. The ionol was characterized from its infrared and nuclear magnetic resonance spectra.

C. The 5-oxo-α-ionol from above was heated with postassium hydrogen sulfate, and the products were extracted with ether and chromatographed. Compound I was obtained in about 55% yield.

Compound I is a liquid of approximate boiling point 61-65°/0.15 millimeters Hg.

Ultraviolet spectrum: $\lambda_{max.}^{EtOH}$ 225 mμ (ϵ=19,500)

Infrared spectrum: 1670, 1635, 1350, 1290, 1005, 900 and 837 cm.$^{-1}$

Nuclear magnetic resonance spectrum: τ = 3.60-4.98 (5), 7.47 (1), 7.75 (2), 8.08 (3), 8.94 (3) and 9.02 (3).

Analysis.—Calcd. for $C_{10}H_{18}O$: mol. wt., 190. Found: Mass, 190.

In accordance with this invention, the designated compound I is usually added to a domestic tobacco in amounts to provide a tobacco in which is dispersed about 0.001 to about 1.0 percent by weight of the additive. Preferably the amount of additive is between about 0.005 and about 0.03 percent by weight in order to form a domestic tobacco having a desired flavor and aroma. The preferred percentages may be somewhat less, however, if other flavorants imparting a desired aroma are also employed. The additive may be applied in any suitable manner and preferably in the form of a liquid solution or suspension by spraying, dipping or otherwise. The additive may be incorporated at any step in the treatment of the tobacco but is preferably added after aging, curing and shredding and before the tobacco is formed into cigarettes. Likewise, it will be apparent that only a portion of the domestic tobacco need be treated and the thus treated tobacco may be blended with other tobaccos before the cigarettes are formed. In such cases the tobacco treated may have the additive in excess of the amounts above indicated so that when blended with other tobaccos the final product will have the percentage within the indicated range.

In accordance with one specific example of this invention, an aged, cured and shredded burley tobacco is sprayed with a one percent ethyl alcohol solution of the above indicated compound in an amount to provide a tobacco composition containing 0.01 percent by weight of the additive on a dry basis. Thereafter the alcohol is removed by evaporation and the tobacco is manufactured into cigarettes by the usual techniques. The cigarette when treated as indicated has a desired and pleasing aroma which is described by some people as spicy and peppery and which is detectable to some extent when the cigarette is in its package but which is particularly detectable and pleasing in the main and side smoke streams when the cigarette is smoked.

It will be particularly apparent that the manner in which the additive is applied to the tobacco is not particularly importance since, as indicated, it may be done in the form of spraying or dipping, utilizing suitable suspensions or solutions of the additive. Thus water or volatile organic solvents, such as alcohol, ether, acetone, volatile hydrocarbons and the like, may be used as the carrying medium for the additive while it is being applied to the tobacco. Also, other flavor and aroma producing additives, such as those disclosed in Jones United States Patent No. 2,766,145 and Schumacher United States Patent No. 2,978,365, may be incorporated into the tobacco with the additives of this invention.

While this invention is particularly useful in the manufacture of cigarette tobacco, it is also suitable for use in connection with the manufacture of pipe tobacco, cigars and other tobacco products formed from sheeted tobacco dust or fines which are well known to the art. Likewise, the additive of the invention being appreciably volatile can be incorporated with materials such as filter tip material, seam paste, packaging materials and the like which are used along with tobacco to form a product adapted for smoking. Furthermore, the compounds may be added to certain tobacco substitutes of natural or synthetic origin and by the term "tobacco" as used throughout this specification is meant any composition intended for human

consumption by smoking or otherwise, whether composed of tobacco plant parts or substitute materials or both.

Those modifications and equivalents which fall within the spirit of the invention and the scope of the appended claims are to be considered part of the invention.

I claim:

1. A domestic tobacco having added thereto a small amount of 4-(4-oxo-2,6,6-trimethyl-2-cyclohexen-1-yl)-1,3-butadiene sufficient to alter the flavor of the smoke derived from said tobacco.

2. A domestic smoking tobacco having added thereto between about 0.001 and 1.0 percent by weight of 4-(4-oxo-2,6,6-trimethyl-2-cyclohexen-1-yl)-1,3-butadiene.

3. A tobacco product having added thereto a small amount of 4-(4-oxo-2,6,6-trimethyl-2-cyclohexen-1-yl)-1,3-butadiene sufficient to improve the tobacco product.

4. A product adapted for smoking having added thereto a small amount of 4-(4-oxo-2,6,6-trimethyl-2-cyclohexen-1-yl)-1,3-butadiene sufficient to improve the smoking properties of the said product.

5. A tobacco product having added thereto between about 0.001 and about 1.0 percent by weight of 4-(4-oxo-2,6,6-trimethyl-2-cyclohexen-1-yl)-1,3-butadiene.

6. A tobacco product having added thereto between about 0.005 and about 0.03 percent by weight of 4-(4-oxo-2,6,6-trimethyl-2-cyclohexen-1-yl)-1,3-butadiene.

7. A product adapted for smoking having added thereto between about 0.001 and about 1.0 percent by weight of 4-(4-oxo-2,6,6-trimethyl-2-cyclohexen-1-yl)-1,3-butadiene.

8. A product adapted for smoking having added thereto between about 0.005 and about 0.03 percent by weight of 4-(4-oxo-2,6,6-trimethyl-2-cyclohexen-1-yl)-1,3-butadiene.

References Cited by the Examiner

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ABRAHAM G. STONE, *Primary Examiner.*

F. RAY CHAPPELL, *Examiner.*