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METHOD OF IMPROVING TOBACCO BY
FERMENTATION

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10 Claims. (Cl. 131—6)

5 The present invention relates to the fermentation of tobacco and particularly to a fermentation method according to which a fermentation process is called forth, intentionally guided in a definite direction, and under permanent control caused to proceed in this direction.

The invention thus relates to a method of fermenting tobacco by controlled fermentation.

10 The invention is based on the fact, that the aromata of the tobacco in one and the same leaf are different, in as far as it is possible to discern between the aroma of the reaped non-fermented leaf and that of the freshly fermented leaf and also between the aroma of the latter leaf and
15 that of a leaf which has matured through storing and is ready for further treatment in the tobacco industry. We discern between:

1. The primary or plant bouquet,
2. The secondary or fermentation bouquet, and
- 20 3. The tertiary or storage bouquet.

The investigations made have shown with certainty, that there with respect to the described bouquet relations are not only analogies between wine and tobacco, but much more a homology.

25 The present invention deals with the improvement of the secondary or fermentation bouquet. A result of this improvement is an improvement of the tertiary bouquet and therewith a heightening of the quality of the tobacco.

30 Already some decenniums ago Suchsland has however pointed at the possibility that the fermentation process of the tobacco is a process in which microorganisms cause chemical alterations through which complex organic substances are
35 decomposed into simpler compounds, and he has also proposed to inoculate the tobacco with certain microorganisms, which have been bred in a certain manner, and thereby obtain a controlled fermentation. Suchsland's proposals did how-
40 ever not lead to any practical success, because he did not pay any attention to the influence of the oxygen upon the fermentation. The same may be said about all new processes which have been
45 proposed from the time of Suchsland until now in as far as the same are based upon Suchsland's idea. In no case the oxygen is removed, even if it has been proposed to perform the fermentation in air-tight vessels.

50 As for the rest, all proposals for performing the fermentation under exclusion of air (in boxes of wood or the like) have been made by laymen and do at any rate not originate from scientific circles.

They are also based on Suchsland's experience,
55 even if the greater part of the persons which

have dealt with this matter have been unconscious of this fact.

The proposal to ferment under total exclusion of oxygen has for the first time been made in my application and is in fact based on a new inven-
5 tion.

In the yeast fermentation hitherto employed no exclusion of oxygen took place and was also not desired. When the tobacco was fermented in the form of bales an exclusion of O₂ was not
10 achieved also not in the interior of the bales. This becomes clear from the fact that when sufficient moisture is present, mould is formed in the interior of the bales. The "fermentation" in machines needs in this connection not to be dis-
15 cussed. The same is only a drying and remoistening of the tobacco in atmospheric air having a definite temperature and a definite degree of moisture.

All real methods of fermenting tobacco hither-
20 to used are, due to the presence of oxygen, accompanied by more or less intensive oxidations, wherefore, besides the losses due to spoiling (moulding, mustiness, combustion and the like), also very considerable losses of weight, up to 18%,
25 occur.

According to the present invention losses by spoiling of the material and losses of weight caused through oxidation are avoided.

According to the invention the tobacco may
30 also, before the fermentation takes place, be inoculated with suitable microorganisms, which are capable of growing in the absence of oxygen, such as for instance microorganisms bred on noble tobaccos or anaerobic yeasts. Hereby any
35 desired bouquet of the tobacco may be developed. For the tobaccos grown in this country above all microorganisms bred on foreign tobaccos are advantageous, but also pure cultures of wine yeasts may be used, under consideration of the fact that
40 on the fields on which tobacco grows also wine yeasts of the country are cultivated.

Therefore, also several fermentation processes may be carried through after one another.

45 Since the growth of aerobic microorganisms—such as for instance the mould fungus—is prevented and any disturbance of the anaerobic flora during its activity is avoided, the duration of the fermentation may be shortened from months
50 (when the tobacco is fermented in heaps) to days, provided the tobacco is sufficiently rich in microflora (for instance when the own flora is used).

When working in accordance with the present
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invention also a fully uniform bouquet will be obtained in the entire batch under treatment.

Moreover, when proceeding in accordance with the invention the nicotine content of the finished tobacco will be considerably lower than in tobacco treated after the known methods.

The oxygen may be removed by expelling the atmospheric air. This may for instance be done by forcing the air out of the fermentation vessel by means of suitable gases, for instance CO₂. The gases may hereby be blown into the fermentation vessel or be produced in the fermentation vessel. The escape of the gases which are formed through the fermentation, and which would cause an over-pressure, must be controlled in such a manner that the introduction of air is avoided, for instance by placing tubes in the tobacco mass which air-tightly penetrate the walls of the fermentation vessel.

At the end of the fermentation a continuation of the same must be prevented, for instance by heating the tobacco under admission of air until albumen is formed, i. e. to more than 60° C.

I claim:—

1. The method of fermenting tobacco which comprises inoculating the tobacco with suitable cultured microorganisms, removing all air from the tobacco and conducting the fermentation thereof in an oxygen-free environment.

2. The method of claim 1, in which the inoculating microorganisms were cultured on noble tobacco.

3. The method of claim 1, in which the inoculating micro-organisms are anaerobic yeasts.

4. The method of fermenting tobacco which comprises inoculating tobacco with suitable cultivated microorganisms, removing all air from the tobacco, conducting the fermentation in an oxygen-free environment, then raising the temperature of the so-fermented tobacco to more than 60° C.

5. The method of fermenting tobacco, as recited in claim 1 as modified in that the air is removed from the tobacco by means of a suitable gas.

6. The method of fermenting tobacco as recited in claim 1, as modified in that the oxygen is removed from the tobacco by blowing a current of suitable gas therethrough.

7. The method of fermenting tobacco as recited in claim 1 as modified in that the oxygen is removed by blowing a current of carbon-dioxide gas therethrough.

8. The method of fermenting tobacco as recited in claim 1, as modified in that any gases arising during the fermentation are removed while still maintaining the oxygen-free environment.

9. As a product of manufacture, tobacco which has been fermented with microorganisms in a totally oxygen-free environment.

10. As a product of manufacture, tobacco which has been fermented with suitable anaerobic microorganisms in any oxygen-free environment.

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