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A screening procedure to prioritize tobacco products that are suspected of having a **characterizing flavor** other than tobacco

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Background

Cigarettes with a characterizing flavor other than tobacco are banned in, for example, the European Union (EU) and United States. The Independent Advisory Panel on characterizing flavors in tobacco products (IAP) uses a trained sensory panel to determine whether or not a tobacco product has a characterizing flavor. EU member states can request for an expert opinion from IAP regarding products suspected of having a characterizing flavor. Our aim was to establish a screening procedure to prioritize tobacco products that are suspected of having a characterizing flavor other than tobacco. The developed screening procedure can be used for selecting suspicious cigarette brand variants that can be tested by the IAP panel.

Methods

Twelve test products and three reference products were selected as samples for a smelling experiment. Test products came from cigarette brands that either 1) were known as menthol cigarettes prior to the menthol ban (n=4), or 2) had variant names with terms that were also used for former menthol cigarettes (i.e., menthol, ice, green, arctic, fresh, alpine, activate, cold) (n=6), or 3) both (n=2). One research reference cigarette and two reference cigarettes from the IAP panel were used as reference samples (n=3).
The cigarette filler from these products was transferred into glass vials (Figure 1).

Figure 1: Glass vials with tobacco filler of the test products as presented to the participants during the smelling experiment.

We recruited 16 participants (3M, 13F, aged 25-54 years) through a convenience sampling method. The untrained participants smelled 15 anonymized samples and rated them for the presence (yes/no) and intensity (7-point Likert Scale) of flavor attributes. We distinguished between non-tobacco related flavor attributes and tobacco-related flavor attributes that are part of the odor of tobacco (based on control/reference products), as identified by the IAP (Table 1).

Table 1: Flavor attributes presented in the smelling experiment.

Non-tobacco-related flavor attributes
Spices (aniseed, cardamom, cinnamon, cloves, etc.)
Floral (lavender, rose, etc.)
Candy (cotton candy, marzipan, etc.)
Sweet (caramel, chocolate, honey, vanilla, etc.)
Fruity (banana, grape, apple, citrus, etc.)
Menthol (mint, spearmint, or peppermint)
Tobacco-related flavor attributes
Dried fruits (raisins or prunes)
Cardboard
Black tea
Cheese
Wood (cedarwood, decayed dry wood, etc.)
Nature (freshly cut grass, hay, dried leaves, etc.)
Dark chocolate or cocoa

The perceived intensity of flavor attributes in test products was corrected for the average perceived intensity of flavor attributes in reference samples, by subtracting by the number of participants who perceived this flavor in the reference samples.

Results

Non-tobacco flavor attributes were reported in all products (Figure 2). Floral, sweet and menthol flavor attributes were most frequently identified. For five products, participants reported a non-tobacco flavor attribute more often than for reference samples:
• Pall Mall Alpine and Lucky Strike Ice Cold: menthol-like odor.
• Kent Surround: sweet odor.
• Camel Activate Green and Camel Activate White: floral and sweet odors, as well as various other odors detected by fewer participants.

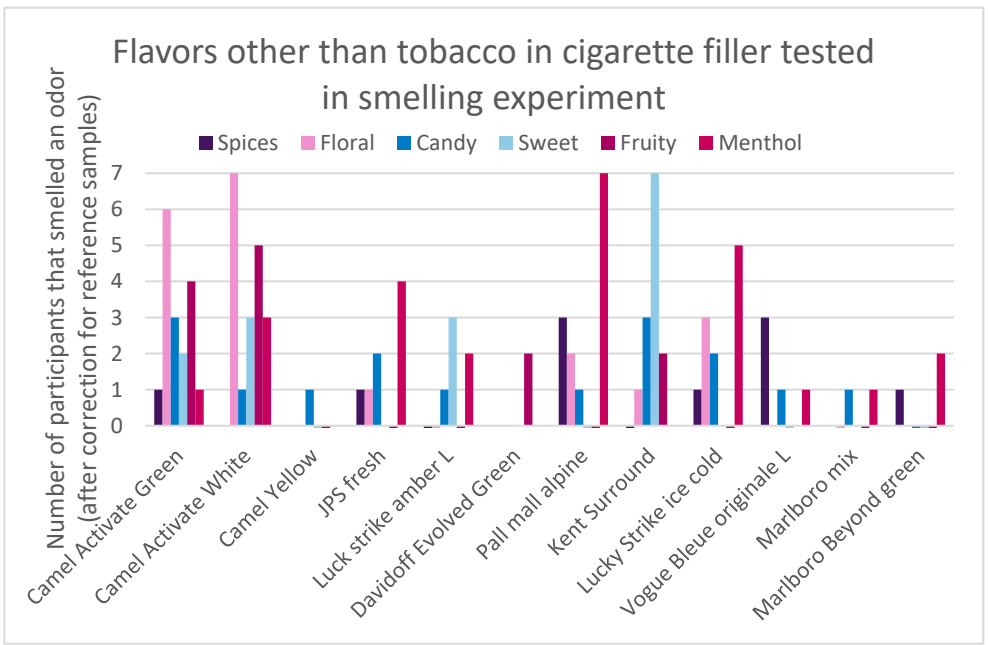

Figure 2: Flavor attributes other than tobacco in the tested cigarettes. Scores on the y-axis indicate the number of participants who perceived a specific odor attribute (with an intensity of at least 2), subtracted by the number of participants who perceived this flavor in the reference samples.

A limitation of this smelling experiment is that the interpretation of flavor attributes by untrained subjects and use of the intensity scale is subjective. What one participant may describe as fruity or weak, another may perceive as sweet and an intense odor. IAP-panelists are trained in recognizing specific flavors.

Conclusions

- We have established a procedure for selecting suspicious cigarette brand variants that can be tested by the IAP panel.
- The mini-smelling panel experiment resulted in five cigarette brand variants suspected of having a characterizing flavor. If these brands are submitted to the IAP, we believe that the IAP, supported by the technical panel, is likely to judge that they have a characterizing flavor.
- The procedure could be suitable for screening for a (characterizing) flavor in other tobacco and related products as well. Examples of other products include heated tobacco products and cigarillos.

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	Tobacco Industry	E-cigarette & nicotine product industry (excluding pharma)	Pharma Industry
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