Candy Flavorings in Tobacco

Jessica E. Brown  
*Portland State University*

Wentai Luo  
*Portland State University*

Lorne M. Isabelle  
*Portland State University*

James F. Pankow  
*Portland State University*, pankowj@pdx.edu

Follow this and additional works at: [https://pdxscholar.library.pdx.edu/chem_fac](https://pdxscholar.library.pdx.edu/chem_fac)  
Part of the Chemistry Commons, Food Chemistry Commons, and the Toxicology Commons

Let us know how access to this document benefits you.

**Citation Details**

This Article is brought to you for free and open access. It has been accepted for inclusion in Chemistry Faculty Publications and Presentations by an authorized administrator of PDXScholar. Please contact us if we can make this document more accessible: pdxscholar@pdx.edu.
Candy Flavorings in Tobacco

TO THE EDITOR: Flavored tobacco products are marketed worldwide (see the Supplementary Appendix, available with the full text of this letter at NEJM.org). A 2007 World Health Organization (WHO) report states, “In view of the little research that has been conducted on flavoured tobacco, the WHO Study Group on Tobacco Product Regulation urges health authorities to consider public health initiatives to reduce the marketing and use of flavoured tobacco products.”

In the United States, the Food and Drug Administration reports, “Almost 90 percent of adult smokers start smoking as teenagers. Flavored cigarettes are a gateway for many children and young adults to become regular smokers.”

The Family Smoking Prevention and Tobacco Control Act of 2009 banned U.S. sales of cigarettes with “characterizing flavors” other than menthol. However, that ban does not extend to the many products that are not categorized as cigarettes under U.S. law. These products include cigarette-like small and large cigars, cigarillos, blunts (large cigars composed of a tobacco-based paper overwrap holding shredded tobacco [such as a “Phillies Blunt cigar”]), conventional rolled-leaf cigars, “roll-your-own” tobacco, “blunt wraps” (i.e., tobacco-based wraps — often flavored — that are related to the wraps used on a blunt cigar and are often used to roll cannabis), hookah tobacco, moist snuff for “dipping,” “dissolubles” such as Camel Orbs, and electronic cigarettes. Some cannabis smokers use the shell of a blunt cigar to “roll a blunt”; this creates a nexus of tobacco use with cannabis use. Blunt wraps provide just a tobacco wrap in a ready-to-roll form. Because some cigars are now structurally very similar to cigarettes (see...
The ability to flavor cigars translates into the continued availability of flavored cigarette-like products. A recent article in which results from the Centers for Disease Control and Prevention were reported showed that flavored smoking products are used by 42% of middle-school and high-school students who smoke. Such products have been called “candy-flavored tobacco,” and some jurisdictions (e.g., New York City and Providence, RI) have enacted restrictions.5,6

We identified the flavor chemicals and their levels in several brands of candy, Kool-Aid drink mix, and similarly labeled “cherry,” “grape,” “apple,” “peach,” and “berry” tobacco products. Within each flavor type, we found great overlap in the flavor chemicals used. Benzaldehyde, benzyl alcohol, or both were detected in “cherry” Jolly Rancher candies, Life Savers, Zotz candy, Kool-Aid drink mix, and all cherry-flavored tobacco products examined (Fig. 1A). Methyl anthranilate was detected in all the “grape” candies, Kool-Aid, and tobacco products (Fig. 1B). The organic alcohol 1-hexanol was detected in all “apple” candy and tobacco products (Fig. 1C). We also found analogous patterns for “peach” and “berry” products (see the Supplementary Appendix). Some tobacco products contained flavor chemicals at much higher levels per serving than the non-tobacco products.

The same, familiar, chemical-specific flavor sensory cues that are associated with fruit flavors in popular candy and drink products are being exploited in the engineered designs of flavored tobacco products. What we are seeing is truly candy-flavored tobacco.

Jessica E. Brown, B.S.
Wentai Luo, Ph.D.
Lorne M. Isabelle, M.S.*
James F. Pankow, Ph.D.
Portland State University
Portland, OR
pankowj@pdx.edu

*Deceased.

Supported by Michael J. Dowd, Regina M. Dowd, Patrick J. Coughlin, the Penrose Foundation, and the Cooley Family Fund for Critical Research of the Oregon Community Foundation.

Disclosure forms provided by the authors are available with the full text of this letter at NEJM.org.

This letter was published on May 7, 2014, at NEJM.org.

2. Candy and fruit flavored cigarettes now illegal in United States; step is first under new tobacco law. Press release of the Food and Drug Administration, September 22, 2009 (http://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm183211.htm).

DOI: 10.1056/NEJMc1403015

Correspondence Copyright © 2014 Massachusetts Medical Society.

INSTRUCTIONS FOR LETTERS TO THE EDITOR

Letters to the Editor are considered for publication, subject to editing and abridgment, provided they do not contain material that has been submitted or published elsewhere. Please note the following:

• Letters in reference to a Journal article must not exceed 175 words (excluding references) and must be received within 3 weeks after publication of the article.

• Letters not related to a Journal article must not exceed 400 words.

• A letter can have no more than five references and one figure or table.

• A letter can be signed by no more than three authors.

• Financial associations or other possible conflicts of interest must be disclosed. Disclosures will be published with the letters. (For authors of Journal articles who are responding to letters, we will only publish new relevant relationships that have developed since publication of the article.)

• Include your full mailing address, telephone number, fax number, and e-mail address with your letter.

• All letters must be submitted at authors.NEJM.org.

Letters that do not adhere to these instructions will not be considered. We will notify you when we have made a decision about possible publication. Letters regarding a recent Journal article may be shared with the authors of that article. We are unable to provide prepublication proofs. Submission of a letter constitutes permission for the Massachusetts Medical Society, its licensees, and its assignees to use it in the Journal’s various print and electronic publications and in collections, revisions, and any other form or medium.