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AVAILABILITY AND CHARACTERISTICS OF BETEL PRODUCTS IN THE U.S.†

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Abstract

Betel use involves oral placement of shards of areca nut (*Areca catechu* palm seed containing the cholinergic agonist arecoline) wrapped with slaked lime in a betel leaf (*Piper betle* plant) or various chopped or powdered products containing areca nut and/or parts of the betel plant. Additives to this mixture include catechu (areca palm extract), spices/sweeteners (e.g., saccharin, cloves), and/or tobacco. Betel use is most common in Asia and East India; however, little is known about the availability and characteristics of these products outside of this region. Thus, a representative sample of betel products and additives was purchased in the Richmond, Virginia area. Five venues were visited between March and May, 2006. Products successfully purchased were those containing betel alone (seven), betel/tobacco (three), tobacco alone (four), and additives (four). Most betel products listed ingredients on the packaging, though some did not explicitly distinguish between those with versus without tobacco. Importantly, seven of seven betel alone and one of three betel/tobacco products omitted any health-related warnings. All products were inexpensive and relatively obtainable in the groceries visited. More research is warranted in order to accurately estimate product emergence into the U.S. and other world markets, and the consequent impact on public health.

Keywords

areca; betel nut; gutka; paan; tobacco

A popular practice throughout parts of Asia and the East Indies is the chewing of what is referred to as “betel nut” (Gupta & Ray 2004). Though largely consisting of the ingredient areca nut (the seed of the *Areca catechu* palm), the common additive betel leaf (from the *Piper betle* plant) has led to the mixture’s current labeling. Other ingredients often include slaked lime (i.e., calcium hydroxide paste), catechu (extract from the *Areca catechu* tree), spices/sweeteners (e.g., fennel, cloves, cardamom, syrup, coconut, aniseed, etc.) and/or tobacco. In its most traditional form, betel nut quid is made by spreading slaked lime and/or catechu onto the betel leaf, and then rolling in the shards of areca nut and other preferred additives (Williams et al. 2002). However, preparations and specific ingredients can be individualized, or sometimes reflect the users’ culture: fermented areca nuts (e.g., Sri Lanka and North Eastern

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India), unripe areca nuts (e.g., Taiwan and Guam), areca nut alone (i.e., simply chewing shards of the nut; e.g., Guam and Cambodia), betel flowers (a.k.a. inflorescence; e.g., Papua New Guinea), and betel stems (aboriginal groups in Asia; Gupta & Warnakulasuriya 2002). Thus, betel nut preparations may contain a spectrum of ingredients and can be prepared in a variety of ways.

Though the use of betel nut originated in South East Asia and India, the practice of betel nut chewing has spread with the migration of these populations. As more communities of East Asian origin emerged in areas such as the United Kingdom, Africa, Australia, China, and the United States, increases in betel nut use have been observed (Changrani & Gany 2005; Warnakulasuriya 2002). Also contributing to this increase is the marketing of betel preparations within the past twenty years (Croucher & Islam 2002). In India for instance, the tobacco industry introduced a convenient and imperishable mixture of areca nut, lime, catechu, sandalwood, and tobacco known as *Gutka*. This same mixture without the tobacco added is referred to as *Paanmasala*; both of these products are now provided by most Indian tobacco manufacturing companies (Gupta & Ray 2004). Other commercial products include *Supari* (roasted and flavored pieces of areca nut), *Mainpuri* (areca nut, tobacco, slaked lime, camphor, and cloves), and *Mawa* (areca nut, tobacco, and slaked lime) to name a few. Consequently, it is estimated that over 600 million people now use some form of this substance worldwide (Nelson & Heischouer 1999).

The popularity of betel nut continues despite its adverse consequences for some users. For example, it is now well-known that areca nut use greatly increases the risk of oral submucous fibrosis (OSF), a precancerous condition which is characterized by lesions in the mouth and a hardening of the mucosal lining (Trivedy, Craig & Warnakulasuriya 2002). Indeed, betel nut chewing has been associated with oral cancers (Lin et al. 2005), and betel without tobacco has been classified as a human carcinogen by the International Agency for Research on Cancer (2004) of the World Health Organization. Preclinical and clinical research further implicates betel use with other health problems such as peptic ulceration (Ahmed et al. 1993), abnormal liver function (Sarma et al. 1992), and hypoglycemia (Chempakan 1993). Moreover, betel nut preparations that include tobacco add to these health threats, exposing the user to tobacco toxins and carcinogens (Hoffmann & Hecht 1985).

Given these potential health threats, and the accumulating evidence on the migration of betel products outside of their native areas, further investigation is necessary. Unfortunately, there is currently little research even on the types of products commonly available here in the U.S. Thus, this study is designed to report on the availability and characteristics of a representative sample of betel nut products purchased in the greater Richmond, Virginia area.

METHOD

A list of businesses in the greater Richmond, Virginia area that were thought to sell betel nut products was generated via the telephone directory and online searches. Given that it was not essential to the study to identify every retail outlet, a convenience sample was produced. A total of seven businesses were identified, and five were selected for purchasing attempts. These five stores were visited by one of the authors (LSD) during the period from March to May, 2006. An exemption was obtained from the Virginia Commonwealth University IRB relating to human subject protection for performing this study.

Buying attempts were made to purchase any and all products that contained areca nut and/or betel leaf, including those that were combined with tobacco. Given that many of the same products are marketed under different brand names (i.e., Gutkha is produced by Manikchand, Pan-Parag, Goa, Shimla, Moolchand, Sikandar, and Tulsi), the buyer was instructed to purchase

as many different product brands as possible. Additionally, any additives common to betel mixtures (i.e., tobacco alone, sweeteners, spices, etc) that were sold along with the betel products were purchased.

Although the buyer did not purposively divulge the objective of product purchasing to suppliers, no deception was permitted. Thus, information about the reason for purchasing was provided if prompted by a salesperson. Analysis of product labeling included the interpretation of Hindi language printed on some of the products; one of the authors (LSD) provided translations of these terms for our descriptive results.

RESULTS

Products successfully purchased were those that included betel nut alone (seven), betel nut plus tobacco (three), tobacco alone (four), and sweeteners/additives (four). Table 1 lists these products and provides a description of their characteristics. Figure 1 displays all products purchased except for additives/fresheners.

Availability and Purchasing

Every East Asian grocery store visited sold some type of betel products. Many betel-containing products were on display to customers (i.e., sitting in view on the counter), while those containing tobacco were behind the counter or produced from drawers on request. Purchases were easily made for all products, as store clerks did not question the buyer but occasionally provided warnings to be careful with tobacco-containing products. Prices varied between the stores but were relatively cheap; a small pouch of either betel alone or with tobacco was approximately US\$0.50, and a box or bag containing anywhere from 24 to 48 pouches was approximately US\$5.00.

Packaging and Ingredients

Most products listed ingredients on the packaging, though some did not explicitly identify those containing betel with versus those without tobacco (e.g., Tulsi brand paan masala versus gutka). The constituent labels for some product brands (7 Up/7 Star and Tasty Gold betel-alone, and Kuber tobacco-alone) could be found on the boxes though not on the enclosed individual sachets. Moreover, some of these products were available in both forms (e.g., box/bag versus individual packets), and thus able to be purchased and consumed without forewarning of the contents. The betel-alone Rasily brand was sold only in individual sachets, and the packaging stated nothing other than the brand name. Thus, knowledge of the product type and ingredients was obtained only through our own research efforts. Raw ingredients were also readily available, including: areca nut flakes or chunks, betel leaves, and a variety of sweeteners and additives.

Language translation was necessary for a few product types and ingredients. For example, the ingredient lists for two products (RMD Gutkha betel/tobacco and Himalaya Hira Moti mouth freshener) were printed only in Hindi. Additionally, three products provided no English labeling on the individual sachets contained within a larger box or bag (betel-alone Tasty Gold and Shahi Deluxe, and tobacco-alone Kuber). Thus, if the individual sachets for these products are sold and purchased separately, the information could only be interpreted by a Hindi speaker.

Health-Related Warnings

Importantly, seven of seven betel-alone and one of three betel-plus-tobacco (i.e., Pan Parag brand) products did not provide any health-related warnings on the packaging in any language. Four of the betel-alone products, however, did warn of their artificial sweetener constituents for those attempting to restrict their intake. And the betel-alone Tasty Gold brand boasted of

exclusion of artificial colors, despite the fact that it listed artificial flavors as an ingredient. None of the raw areca nut packages provided any information, including warnings. Some of the chunks were sold simply in plastic bags with no labels, and the sole label on a can of areca nut flakes stated “food container.”

The warning for the betel-alone Shahi Deluxe brand noted that the product was a substitute for cigarettes, with the opportunity to be interpreted as providing a reduction in health risk. Fortunately, all four tobacco-only products noted injury to health, and three products warned of use by minors. The creamy snuff Tona brand, however, also informed novel users to start with a small quantity.

DISCUSSION

The rate of Asian-Indian immigration into the U.S. has risen dramatically over the past decade, as this community has more than doubled in number during that time (U.S. Census Bureau 2001). A simultaneous emergence of betel nut product importation and availability has been noted, though these reports are mostly observational in nature (e.g., Changrani & Grany 2005; Nair, Bartsch & Nair 2004). More systematic research examining the retail and consumer betel nut practices in the U.S. and other non-Asian countries is therefore warranted. As an initial step, this study was undertaken to identify and describe betel nut preparations accessible in a select region, that of Richmond, Virginia. A representative sample of 18 products and their additives (tobacco and sweeteners) were successfully obtained from East Asian grocery stores throughout the area. All products were easily purchased and relatively inexpensive. The large majority of products provided information about constituents, though few contained health-related warnings and some information was available only in the Hindi language. A few products did not have product labeling at all. These observations are noteworthy given the potential health risks associated with betel nut product use, especially when formulated with tobacco.

This study has several limitations that may influence the generalizability of its findings. It is unclear as to whether the betel product retail outlets in Richmond, Virginia are representative of the extant outlets in the U.S. Given the unregulated betel nut market, and the lack of open advertising for these products, it is difficult to compare our purchased sample with that of other possible retail areas. Thus, future sampling from other areas might include a different variety of product brands (e.g., Shimla, Raja) and types (e.g., Qiwam, Nass) to better characterize those preferred by the betel nut-using population in each region. Another limitation may be the chosen venues for purchasing; all five venues were grocery stores specializing in East Asian products. Alternative outlets would include American grocery stores, tobacco and head shops, and health product stores, though betel products were not readily available from these venue types in our area. Of course, the Internet is accessible throughout the U.S. and the rest of the world and also provides a convenient resource for betel product purchases. A study of web availability and any restrictions that might be placed on sales to minors is therefore justified. This study’s goal, however, was simply to report on the local availability of products known to be in the U.S. Nonetheless, future work might consider a more comprehensive search to evaluate the feasibility of obtaining betel products via these other methods.

It remains to be seen what impact betel product importation and use might have on betel-naïve populations. Besides determining the extent of product accessibility and consumption, research is also needed to characterize the population of current and potential betel nut users in locations outside of Asia and East India. Though our study did not systematically collect data regarding the population of betel purchasers from our store sample, non-Asian persons have been observed to frequent these locations. Nonetheless, it seems probable that most users of betel products would be those who have carried on the custom from their native cultures. This is

evidenced by studies examining betel use migration from Asia to other countries (Africa and the U.K.), as well as penetration to the second generation (Warnakulasuriya 2002). Unfortunately, nothing is known about this issue in the U.S.

Despite the findings of this study, it would be premature to judge the impact of betel nut retail and consumer practices. Much work is needed regarding the prevalence and patterns of use here in the U.S., and importantly on any associated health outcomes. Clearly, the combination of betel with tobacco introduces all of the concerns associated with tobacco use in other forms. Taken into consideration, however, should be the long-standing cultural practice of betel use among native populations (Gupta & Warnakulasuriya 2002). This report will hopefully stimulate further research on the impact of betel use outside of its area of greatest prevalence.

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Figure 1.

Table 1

Characteristics of betel nut products and their common additives

Product	Country	Package-listed ingredients	Label Warnings
Betel nut (BN) alone			
7 Up/7 Star Supari	Pakistan	BN, saccharin, menthol	Non-nutritive artificial sweetener
Pan Parang Pan masala	India	BN, lime, catechu, cardmom artificial flavors	
Rasily Supari	Pakistan	BN	
Shahi Deluxe Supari	Pakistan	BN, fennel, dry dates, menthol saccharin, artificial flavors	Non-nutritive artificial sweetener Substitute for pan and cigarettes
Tasty Gold Sweet supari	Pakistan	BN, saccharin, menthol, artificial flavors	Non-nutritive artificial sweetener Free from artificial colors
Tulsi Pan masala	Pakistan	BN, dry dates, aniseed, cardamom saccharin, artificial flavors	Non-nutritive artificial sweetener
Betel nut flakes/chunks	n/a	n/a	Ziploc bags: no labels Plastic container: 'food container'
Betel nut (BN) plus tobacco			
RMD (Manikchand) Gutkha	India	BN, catechu, tobacco, lime, saffron permitted spices and flavors	Chewing of tobacco and supari is injurious to health
Pan Parag Gutkha	India	BN, catechu, tobacco, lime, saffron permitted spices and flavors	
Tulsi Royal Pan Masala	India	Contains added flavors	Chewing of tobacco and supari is injurious to health
Tobacco alone			
Baba 120 without silver leaves	India	Tobacco flakes, menthol, flavors aromatic spices, essential oils	Chewing of tobacco is injurious to health
Kuber Khaini	India	Tobacco, lime, water, oil, menthol mixed spices, natural and artificial flavors	Chewing of tobacco is injurious to health
Miraj Tobacco Lime mixed	India	Tobacco, lime, menthol	Chewing of tobacco and supari is injurious to health
Tona Creamy Snuff	India	Snuff (35–43%)	Snuff injurious to health Beginners start with small quantity
Additives for betel			
Chandan	India	Nagravel leaves, rose petals, fennel	

Product	Country	Package-listed ingredients	Label Warnings
Calcutta Mitha Pan	India	cardamom, cloves, sandal flavor, silver foil	
Himalaya		Saccharin, menthol, isabgol	Has no food value
Hira Moti		scented oil	Removes bitter taste of pan
Meenakshi	India	Sugar, flavors, silver leaves, menthol	
Pan Chatni		added flavors, permitted natural colors	
Priti Gold		Sugar, flavors, silver leaves, menthol, saffron	For taste and flavor to pan
Pan Chatni		added flavors, permitted natural colors	