ผังความชอบของเครื่องดื่มกาแฟผสมสำเร็จรูปที่วางจำหน่ายในประเทศไทย**

Preference Mapping of Commercial Instant Coffee Mix in Thailand**

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โรงเรียนการเรือน มหาวิทยาลัยสวนดุสิต

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บทคัดย่อ

ผลิตภัณฑ์กาแฟผสมสำเร็จรูปชนิด 3 in 1 เป็นเครื่องดื่มที่นิยมบริโภคในประเทศไทย การวิจัยครั้งนี้มีวัตถุประสงค์เพื่อศึกษาความชอบของผู้บริโภค และคุณลักษณะทางประสาทสัมผัสที่สำคัญของกาแฟผสมสำเร็จรูปชนิด 3 in 1 ศึกษาความสัมพันธ์ระหว่างข้อมูลด้านความชอบและคุณลักษณะทางประสาทสัมผัสด้วยเทคนิคการสร้างผังความชอบ งานวิจัยนี้ใช้ตัวอย่างกาแฟผสมสำเร็จรูปชนิด 3 in 1 ที่มีส่วนผสมแตกต่างกัน จำนวน 10 ตัวอย่าง จากนั้นทดสอบความชอบของผู้บริโภคจำนวน 110 คน แบ่งเป็นเพศชาย 50.00% และเพศหญิง 50.00% อายุส่วนใหญ่อยู่ในช่วง 35 - 50 ปี คิดเป็น 47.70% พบว่า กาแฟผสมสำเร็จรูปชนิด 3 in 1 ตัวอย่าง B3 มีคะแนนความชอบในคุณลักษณะต่าง ๆ สูงสุด ได้แก่ ลักษณะปรากฏ สี กลิ่น รสขม รสหวาน ความมัน และความชอบโดยรวม ผลการประเมินคุณลักษณะทางประสาทสัมผัสเชิงพรรณนาโดยผู้ทดสอบที่ผ่านการฝึกฝนจำนวน 10 คน พบว่ากลุ่มผู้ทดสอบสามารถแยกแยะได้ 23 คุณลักษณะ เมื่อนำข้อมูลคุณลักษณะทางประสาทสัมผัสเชิงพรรณนามาวิเคราะห์องค์ประกอบหลัก (Principal Component Analysis; PCA) สามารถแบ่งคุณลักษณะเป็น 2 กลุ่มซึ่งอธิบายความแปรปรวนได้ 72.44% ประกอบด้วย องค์ประกอบที่ 1 คือ คุณลักษณะด้านรสหวานและนม และองค์ประกอบที่ 2 คือ คุณลักษณะด้านรสขมและความฝาด เมื่อนำข้อมูลด้านความชอบและข้อมูลด้านคุณลักษณะทางประสาทสัมผัสเชิงพรรณนามาสร้างผังความชอบ (Preference Mapping) พบว่าผังความชอบที่ได้ประกอบด้วย 2 องค์ประกอบหลักซึ่งอธิบายความแปรปรวนได้ 87.20% โดยคุณลักษณะที่ส่งผลเชิงบวกต่อความชอบได้แก่ กลิ่นคาราเมล และรสหวาน ส่วนคุณลักษณะที่ส่งผลเชิงลบต่อความชอบ ได้แก่ รสขมติดลิ้น รสขมตกค้าง และความฝาดตกค้าง

คำสำคัญ : กาแฟผสมสำเร็จรูป การทดสอบเชิงพรรณนา ความชอบของผู้บริโภค ผังความชอบ

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Abstract

3 in 1 instant coffee mix is a popular beverage in Thailand. The objectives of this study were to investigate consumer acceptance and sensory characteristics of commercial instant coffee mix available in Thailand and relationships between consumer acceptance and sensory attributes using preference mapping. There were ten instant coffee mix samples used in this study which were selected from different proportions of instant coffee, sugar and non-dairy creamer. For acceptability test, coffee samples were evaluated by 110 target consumers which 50.00% male, 50.00% female consumers, and 47.70% of consumers' age were 35 – 50 years old, found B3 had the highest acceptance scores in appearance, color, aroma, bitterness, sweetness, oiliness and overall liking. The sensory descriptive analysis was conducted by ten trained panelists. The panel identified 23 sensory attributes. The results from principal component analysis (PCA) of descriptive data demonstrated that two principal components (PCs) could describe 72.44% of the variation. PC1 was sweet and milk characteristics and PC2 was bitter and astringent characteristics. The results of preference mapping indicated attributes into 2 PCs that could explain 87.20% of the variation. Caramel aroma and sweetness were drivers of liking whereas bitter on tongue and bitter aftertaste were drivers of disliking.

Keywords: instant coffee mix, descriptive analysis, consumers' liking, preference mapping

Introduction

Instant coffee mix has widely consumed in Thailand due to its convenience, cheap price and acceptable taste. Generally, 3 in 1 instant coffee mix which consisted of instant coffee, non-dairy creamer and sugar. Nowadays, the market competition causes industrial producer to increase a variety of instant coffee mix products that providing more alternatives for consumers.

There are two types of coffee beans which are commonly used in coffee industry. *Coffee Arabica variety* is cultivated in Latin America, Indonesia and India. It provides mild flavor, softer taste and higher acidity. *Coffee Robusta variety,* grown at lower altitudes than *Arabica,* mainly harvested in Africa and Indonesia, has a stronger taste, and peanut after taste because it contains twice as much caffeine as Arabica (Ellis, 2002).

In addition to the species, coffee beans can be processed in different methods which provided their sensory characteristics. Coffee beans for instant coffee are roasted at 300°F (180°C) and then ground to minimize fine particles for industrial brewing. The manufacture of instant coffee begins with extraction of ground beans to recover the coffee aroma and flavor (Andueza et al., 2003). The coffee extract is dried by using spray drying or freeze drying. Although freeze drying is more expensive, it results in a higher quality of products because aroma and flavor of coffee are protected by low temperature condition.

Preference mapping refers to multivariate statistical techniques designed to understand consumer liking of products (Greenhoff & MacFie, 1994). There are few reports on sensory characteristics of coffee that drive consumers' liking. Geel et al. (2005) found relations between consumer preferences and sensory attribute of instant coffee that classified consumers into four groups including "pure coffee lovers" who prefer more astringent, bitter, roasted, nutty and full-bodied flavor (23.00%), "coffee blend drinkers" (30.00%), "general coffee drinkers" (37.00%) and "not serious coffee drinkers" (10.00%). Verela et al. (2014) compared two preference mapping approaches to uncover drivers of coffee liking. The result shows that preference ranking tests plus open comments from consumer were similar to preference mapping from liking scale (traditional method). Actually, sensory attributes of coffee beverages that directly link consumer acceptance and preference mapping is an important tool to understand their relationship. Albanese et al. (2009) used principal component analysis (PCA) to identify relationships and differences among espresso coffee samples.

The objectives of this study were to investigate the consumers' liking and sensory characteristics and to identify the sensory characteristics that drive consumers' liking of 3 in 1 instant coffee mix by using preference mapping

Materials and Methods

1. Instant coffee mix samples

Ten samples of 3 in 1 instant coffee mix were recruited from commercial products available in Thai market with different proportions of instant coffee, sugar and non-dairy creamer (Table 1).

Table 1 Sample code names and formulation

Sample	Producer	Formula	Instant coffee (%)	Sugar (%)	Non-dairy creamer (%)	Skim milk powder (%)	Other ingredients (%)
A1	A	1	11.00	56.00	32.00	0	1.00
A2	A	2	13.00	26.00	50.00	0	11.00
B1	B	1	10.60	53.00	36.00	0	0.40
B2	B	2	10.80	49.20	40.00	0	0
B3	B	3	10.60	53.30	36.10	0	0
C1	C	1	13.00	44.00	42.00	0	1.00
C2	C	2	6.00	50.00	41.00	0	3.00
D1	D	1	11.00	51.70	37.30	0	0
D2	D	2	9.60	52.20	27.70	10.50	0
E	E	-	11.00	53.00	36.00	0	0

2. Consumer testing

The consumer testing was conducted using 110 target consumers who were collected from offices and universities in Bangkok, Thailand. Participants were 50.00% male and 50.00% female, mostly ages ranged from 35 to 50 years old. Target consumers were recruited based on their consumption of instant coffee mix, at least one serving per month. They answered questionnaires about attitudes and behaviors of 3 in 1 instant coffee mix consumption. They were asked to rate instant coffee mix samples for a degree of liking of appearance, color, aroma, bitterness, sweetness and overall liking using 9-point hedonic scale (1 : “dislike extremely”, 9 : “like extremely”) (Meilgaard et al., 2000).

Each consumer received 10 samples to evaluate for 2 sessions and a break of 1 hr between the sessions. The samples were coded with three-digit randomized numbers and served in sequential monadic order.

3. Descriptive sensory evaluation

3.1 Sample preparation

Approximately 20 g of 3 in 1 instant coffee mix samples were brewed with 130 mL of boiling water (90°C) per one cup. Five cups of samples (650 mL) were kept in 1.0 L vacuum bottle.

3 in 1 instant coffee mix samples were tested using descriptive analysis with 15 cm line scale (Stone & Sidel, 2004).

3.2 Panelists

Ten trained panelists were selected from Suan Dusit University. These participants had been working on descriptive analysis for food and beverage products within two years. Participants completed a taste screening session before training to ensure participants had ability to discriminate and identify aromas and tastes of coffee.

3.3 Training

3 in 1 instant coffee mix samples were evaluated in triplicate by a trained panel of 10 judges, using 15 cm line scale with verbal expressions at extreme ends. First training, the panel received three reference standards (coffee samples with different proportions of instant coffee, sugar and non-dairy creamer) for term generation. Panelists described sensory attributes including appearance, aroma, flavor, taste and aftertaste of reference standards. Panelists determined the descriptors for each attribute by consensus and identified reference standards for rating sensory attributes. Second training, the panel reviewed the terms of reference standards. Each panelist rated the intensity of each sensory attribute and produced a consensus score for the reference standards. Third training, the panel reviewed the terms of reference standards and received warm-up samples for training. The panel rated warm-up samples and adjusted their scores until the standard deviation of scores was less than 1.0. Each day of training, panelists were calibrated with warm-up samples. There were ten sessions for panel training before sample evaluation.

3.4 Sample evaluation

Ten samples of 3 in 1 instant coffee mix were triplicate evaluated in terms of sensory attributes. Thirty (30) mL of brewed coffee was presented in white ceramic cup

with cap, coded with 3 digit random numbers, and served at 60°C. Spit cup for expectoration, paper napkin and palate cleansers (unsalted crackers and drinking water) were provided for each panelist. Panelist evaluated one sample at a time with 15 min break between samples. Five samples were evaluated in each session. Two sessions were conducted each day, with at least 1 hr. break between sessions.

4. Statistical analysis

Consumer data were analyzed using analysis of variance (ANOVA). Descriptive data were analyzed with analysis of variance (ANOVA) and multivariate analysis of variance (MANOVA). The XLSTAT version 2014 (demo version) was used to perform the principal component analysis (PCA) of descriptive data and to identify drivers for liking of 3 in 1 instant coffee mix using preference mapping technique.

Results and Discussions

1. Consumer testing

Table 2 represented consumers' liking, there were 50.00% male and 50.00% female target consumers for testing coffee samples. The ANOVA showed that acceptability test using 9 point hedonic scale for appearance, color, aroma, bitterness, sweetness, oiliness and overall liking of coffee samples were significantly different ($P<0.05$).

The E sample was the least liked, followed by C_2 sample (Table 2) in appearance, color, aroma, bitterness, sweetness, oiliness and overall liking of coffee samples.

The B_3, A_2 and D_1 samples were the most liked. These samples were prepared with 11.00 – 13.00% instant coffee. The B_3 and D_1 samples were contained approximately 50.00% of sugar while the A_2 sample had sweetener in its formula.

2. Descriptive analysis

Results from descriptive analysis analyses by using 15 cm line scale, the ANOVA and MANOVA indicated that the intensities of 23 sensory attributes were significantly different ($P<0.05$) between ten coffee samples. The intensity mean scores were presented in Table 3. These results were used to generate bi-plot principal component analysis.

Table 2 Mean hedonic scoresa of commercial instant coffee mix.

Attributes	A_1	A_2	B_1	B_2	B_3	C_1	C_2	E	D_1	D_2
Appearance	6.5 ± 1.3ab	6.8 ± 1.2a	6.4 ± 1.5b	6.6 ± 1.4ab	6.6 ±1.2ab	6.5 ± 1.1ab	5.8 ± 2.0c	5.6 ± 2.0c	6.7 ± 1.2ab	6.6 ± 1.3ab
Color	6.5 ± 1.3ab	6.8 ± 1.2a	6.1 ± 1.6bc	6.4 ± 1.6ab	6.5 ±1.3ab	6.6 ± 1.2a	5.6 ± 1.9e	5.8 ± 2.0cd	6.6 ± 1.1a	6.6 ± 1.4a
Aroma	5.6 ± 1.7b	6.3 ±1.8a	5.7 ± 2.0b	5.8 ± 2.0ab	5.9 ±1.6ab	5.9 ±2.0ab	5.6 ± 1.8b	4.3 ± 2.2c	6.1 ± 1.8ab	5.7 ± 2.0b
Bitterness	5.3 ± 1.9bc	5.8 ± 1.8a	5.7 ± 2.0ab	5.9 ± 2.2a	6.2 ± 1.7a	5.8 ± 1.8a	4.8 ± 2.2c	3.3 ± 2.3d	5.9 ± 1.9a	5.7 ± 2.0ab
Sweetness	5.4 ± 1.7b	5.8 ± 2.0ab	5.6 ± 1.7ab	5.7 ± 1.9ab	6.1 ± 1.6a	5.5 ± 1.7b	5.3 ± 2.4b	3.2 ± 2.0c	5.7 ± 1.8ab	5.9 ± 1.9ab
Oiliness	5.1 ± 1.8d	6.1 ± 1.9a	5.4 ± 1.6cd	5.5 ± 1.8bcd	6.0 ±1.6ab	5.1 ± 1.9d	5.4± 1.9cd	3.2 ± 2.0e	5.7 ± 1.8abc	5.8 ± 2.0abc
Overall liking	5.6 ± 1.6cd	6.3 ± 1.9ab	6.0 ± 1.7bcd	6.0 ± 1.8abc	6.5 ± 1.4a	5.9 ± 1.7bcd	5.5 ± 2.2d	3.2 ± 2.2e	6.3 ± 1.7ab	6.2 ± 1.8ab

a = Means in rows followed by different letters represent significant differences ($p<0.05$).

Table 3 Means[a] of sensory attributes of commercial instant coffee mix.

Attributes	A_1	A_2	B_1	B_2	B_3	C_1	C_2	D_1	D_2	E
Brown color	7.04±0.41b	4.02±0.19de	7.71±0.33a	6.53±0.40b	5.82±0.18c	6.90±0.02b	3.13±0.15f	5.73±0.11c	3.69±0.00e	4.43±0.29d
Cream foam	3.70±0.36bc	2.75±0.68cd	3.93±0.45b	3.88±0.25b	3.91±0.31b	2.29±0.65d	2.66±0.39cd	3.92±0.38b	5.44±0.08a	3.59±0.66bc
Coffee residue	3.71±0.11ab	1.44±0.19e	3.54±0.38ab	2.63±0.35cd	1.85±0.22e	3.31±0.54abc	1.74±0.24e	2.03±0.48de	3.91±0.13a	3.03±0.12bc
Consistency	7.27±0.19ab	7.53±0.11a	5.64±0.08c	7.38±0.18ab	7.51±0.18a	7.26±0.07ab	6.54±1.10b	7.48±0.22a	7.27±0.03ab	7.40±0.03ab
Roast aroma	7.18±0.18b	3.68±0.10d	7.18±0.02b	6.99±0.21bc	5.72±0.04c	6.61±0.56bc	2.02±0.47e	6.65±1.29bc	4.35±0.13d	8.89±0.98a
Bitter aroma	6.21±0.65bc	2.47±0.99e	7.06±0.18ab	6.98±0.11ab	5.57±0.18c	5.74±0.42c	1.95±0.13e	3.50±0.16d	3.60±0.05d	7.54±0.30a
Caramel aroma	3.50±0.18b	5.54±0.17a	2.42±0.30c	3.53±0.04b	3.60±0.13b	1.74±0.11d	2.97±0.62bc	3.04±0.13bc	5.64±0.01a	0.88±0.36e
Milk aroma	3.47±0.04bcd	3.64±0.11bc	1.74±0.02e	3.44±0.44bcd	1.66±0.13e	3.01±0.09d	3.93±0.21b	3.30±0.28cd	5.64±0.08a	1.35±0.40e
Sweet flavor	4.03±0.04cd	5.36±0.53b	3.39±0.16d	3.50±0.09d	3.66±0.31d	3.44±0.35d	6.56±0.25a	3.57±0.34d	4.78±0.04bc	2.25±0.71e
Cream flavor	3.69±0.18bc	5.54±0.23a	2.98±0.04c	4.62±1.61ab	3.66±0.04bc	3.36±0.16bc	3.79±0.04bc	3.77±0.06bc	4.50±0.27ab	2.65±0.33c
Bitter flavor	4.60±0.40cd	3.43±0.06e	7.22±0.30a	6.05±1.34b	4.00±0.00de	7.15±0.33a	1.82±0.01f	5.12±0.08bc	3.35±0.05e	7.25±0.09a
Coffee flavor	6.33±0.91b	5.62±0.07b	7.13±0.17a	7.38±0.45a	5.78±0.40b	5.91±0.23b	3.11±0.08d	4.12±0.01c	3.91±0.04c	7.48±0.04a
Bitterness	5.94±0.09bc	3.85±0.10cd	7.05±0.20b	5.53±2.79bcd	6.91±0.13b	5.51±0.01bcd	1.64±0.02f	4.09±0.15cd	3.57±0.18de	9.84±0.21a
Sweetness	4.19±0.27bcd	5.54±0.30a	3.54±0.04e	3.44±0.08e	3.63±0.09de	3.61±0.07de	4.75±0.04b	3.92±0.12cde	4.47±0.58bc	1.57±0.26f
Sourness	2.87±0.19b	1.39±0.30c	1.73±0.03c	3.49±0.29a	3.31±0.35ab	3.06±0.27ab	1.65±0.10c	3.09±0.06ab	1.81±0.00c	1.84±0.21c
Astringent	3.19±0.08a	2.22±0.93b	3.59±0.31a	3.41±0.13a	3.60±0.22a	3.12±0.19a	1.17±0.36c	1.68±0.11bc	3.10±0.30a	3.55±0.28a

Table 3 Means[a] of sensory attributes of commercial instant coffee mix.

Attributes	A_1	A_2	B_1	B_2	B_3	C_1	C_2	D_1	D_2	E
Oil coating	3.58±0.07ab	3.92±0.06a	1.78±0.04f	2.69±0.62e	3.50±0.08ab	3.12±0.43bcd	3.73±0.04a	3.62±0.01ab	3.44±0.08abc	2.89±0.11cd
Sweet on tongue	3.23±0.22b	4.08±0.03a	3.23±0.14b	3.26±0.42b	3.22±0.13b	1.71±0.15c	4.11±0.08a	3.30±0.15b	4.19±0.27a	1.71±0.30c
Sour on tongue	3.06±0.08abc	1.56±0.08de	3.44±0.53ab	4.50±1.61a	3.38±0.09abc	2.80±0.15bcd	1.27±0.59e	1.92±0.06cde	2.04±0.57bcde	3.37±0.37abc
Bitter on tongue	3.79±0.04cd	3.19±0.48d	4.06±0.08c	5.54±0.13b	4.13±0.09c	4.28±0.48c	1.55±0.47e	3.53±0.15cd	2.13±0.53e	6.91±0.13a
Bitter aftertaste	3.79±0.03cd	1.76±0.01e	5.26±0.18b	4.19±0.45c	3.63±0.09cd	5.26±0.37b	1.71±0.20e	3.23±0.21cd	3.00±0.62d	6.42±0.91a
Astringent aftertaste	3.31±0.08b	2.40±0.18c	3.63±0.17b	3.03±0.49bc	3.41±0.22b	3.28±0.04b	1.01±0.64d	2.99±0.06bc	1.44±0.08d	5.23±0.14a
Sweet aftertaste	3.16±0.13a	3.74±0.45a	1.98±0.30b	1.73±0.12b	1.97±0.40b	3.12±0.10a	3.71±0.04a	3.21±0.03a	3.38±0.35a	1.90±0.59b

a = Means in rows followed by different letters represent significant differences ($p<0.05$).

3. Principal component analysis

Principal component analysis (PCA) was used to identify correlation of descriptive sensory attributes of brewed coffee samples (Figure 1). There were significantly different ($P<0.05$) among ten selected commercial coffee samples. Principal components (PCs) showed that 72.44% of the variance could be explained by two principal components. Principal component 1 (PC1), described 62.01% of the variance, classified the coffee samples into two groups consist of "sweet and milk characteristics" which were categorized as sweet, milk, and cream attributes and "bitter and astringent characteristics" which were composed of bitter, astringent and coffee attributes. Principal component 2 (PC2) were identified with brown, consistency and sourness that explained 10.43% of the variance.

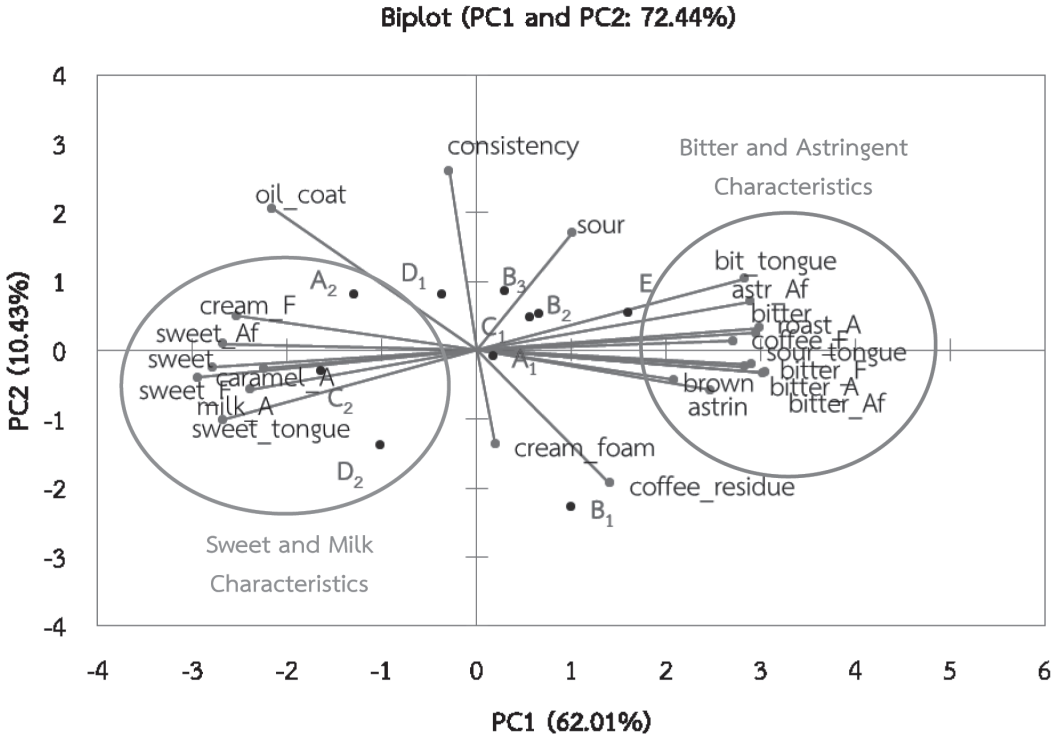

Figure 1 Principal component analysis (PCA) loadings for descriptive sensory attributes of commercial 3 in 1 instant coffee mix

Table 4 showed the factor loadings, where the absolute values greater than 0.70 represent strong influence. Especially in PC1, the indicated sensory attributes were significantly correlated, which were identified as positive values, that included: roast aroma (factor loading = 0.93); bitter aroma (factor loading = 0.97); bitter flavor (factor loading = 0.90); coffee flavor (factor loading = 0.86); bitterness (factor loading = 0.95); astringent (factor loading = 0.78); sour on tongue (factor loading = 0.92); bitter on tongue (factor loading = 0.90); bitter aftertaste (factor loading = 0.96) and sweet aftertaste (factor loading = 0.91). Meanwhile, there were many correlations shown in the attributes with the negative values such as caramel aroma (factor loading = - 0.71); milk aroma (factor loading = - 0.76); sweet flavor (factor loading = - 0.93); cream flavor (factor loading = - 0.80); sweetness (factor loading = - 0.88); sweet on tongue (factor loading = - 0.85) and astringent aftertaste (factor loading = - 0.85).

Table 4 Factor loadings for the sensory attributes of 3 in 1 instant coffee mix

Sensory attributes	PC1	PC2
Brown color	0.66	-0.14
Cream foam	0.06	-0.43
Coffee residue	0.45	-0.61
Consistency	-0.09	**0.82**
Roast aroma	**0.93**[a]	0.08
Bitter aroma	**0.97**	-0.10
Caramel aroma	**-0.71**	-0.08
Milk aroma	**-0.76**	-0.18
Sweet flavor	**-0.93**	-0.12
Cream flavor	**-0.80**	0.16
Bitter flavor	**0.90**	-0.08
Coffee flavor	**0.86**	0.04
Bitterness	**0.95**	0.10
Sweetness	**-0.88**	-0.08
Sourness	0.32	0.54
Astringent	**0.78**	-0.18
Oil coating	**-0.68**	0.65
Sweet on tongue	**-0.85**	-0.32
Sour on tongue	**0.92**	-0.06
Bitter on tongue	**0.90**	0.33
Bitter aftertaste	**0.96**	-0.11
Sweet aftertaste	**0.91**	0.22
Astringent aftertaste	**-0.85**	0.03

[a]Loadings with an absolute value greater than 0.70 are shown in bold type.

4. Preference Mapping

Figure 3 shows the preference mapping of instant coffee mix generated by data from descriptive sensory attributes and consumer liking score. It was found that two principal components (PCs) described 87.20% of the variation. PC1 was identified by roast aroma, bitter aroma, caramel aroma, milk aroma, bitter flavor, coffee flavor, sweet flavor, cream flavor, bitterness, sweetness, astringent, sweet on tongue, sour on tougue, bitter on tougue, bitter aftertaste, sweet aftertaste and astringent aftertaste that explained 37.30% of the variation. Meanwhile, PC2 was characterized by brown, cream foam, consistency and sourness of coffee samples showed that 49.90% of the variation.

From preference mapping bi-plot (Figure 3), D2 sample had a most positive loading with consumers' liking. Descriptive sensory attributes of that sample could be identified high intensities of caramel aroma, milk aroma and sweet on tongue. On the other hand, E sample had negative with consumers' liking which high intensities of roast aroma, bitter aroma, bitter flavor, coffee flavor, bitterness, bitter on tongue, bitter aftertaste and astringent aftertaste according to Geel et al. (2005) that found coffee blend drinkers prefer less intense coffee flavor characteristic, but high sweetness. For the reason that increasing sweet and milk characteristics, but decreasing bitter and astringent characteristics might be drive consumers' liking.

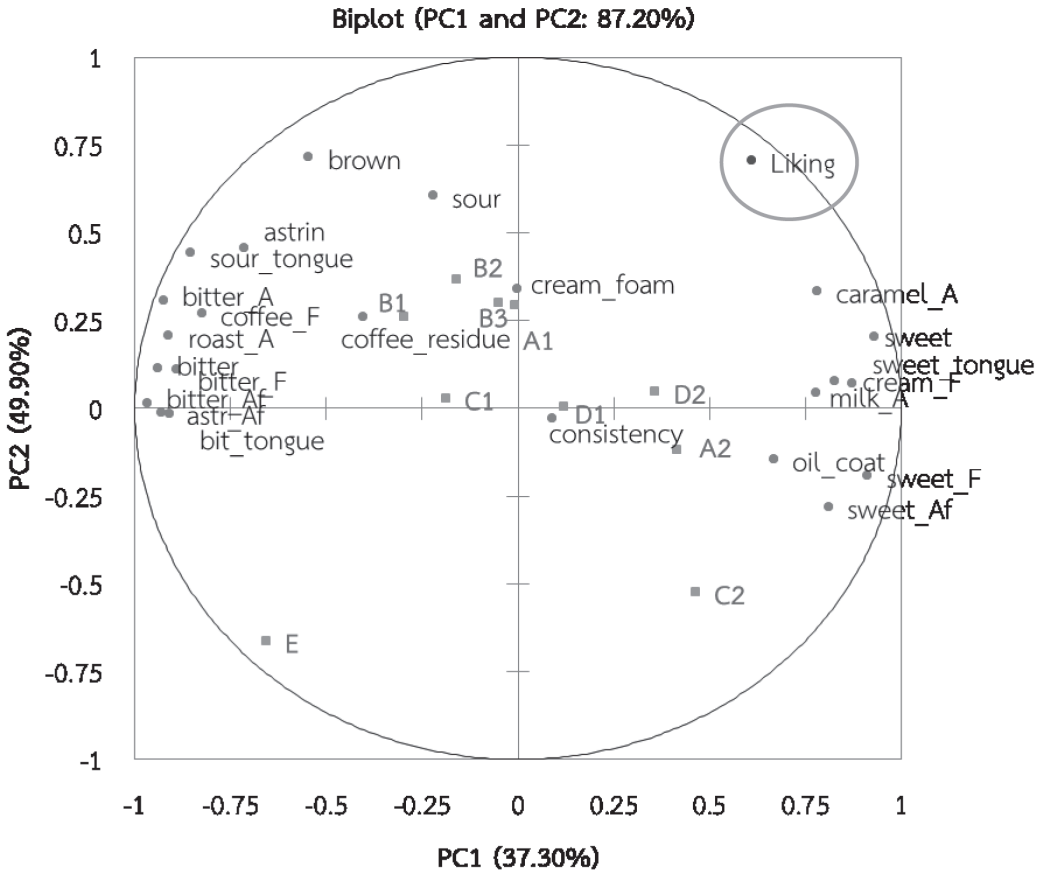

Figure 3 Preference mapping of descriptive sensory attributes and consumer liking for commercial 3 in 1 instant coffee mix

Conclusion

Preference mapping of commercial 3 in 1 instant coffee mix in Thailand provides important drivers of consumers' liking. It is necessary for coffee manufacturer to use the data for consumer satisfaction. From this study, the panel developed 23 sensory attributes to identify instant coffee mix samples. Principal component analysis could be categorized into two groups of descriptive sensory attributes including "sweet and milk characteristics" and "bitter and astringent characteristics". For the preference mapping results, consumers' liking of 3 in 1 instant coffee mix depended on caramel aroma, milk aroma and sweet on tongue. In contrast, bitter and astringent attributes were negatively correlated with liking.

D2 sample which was closed the liking on bi-plot, had high amount of caramel aroma, milk aroma and sweet on tongue. Therefore, it is fascinating to use this information for further research or product development of 3 in 1 instant coffee mix.

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