

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/334683879>

# TASTING PROPERTIES OF SOME BASMAK TOBACCO VARIETIES

Article · June 2018

CITATIONS  
0

READS  
22

4 authors, including:



**Karolina Kocoska**

University "St. Kliment Ohridski" - Bitola

51 PUBLICATIONS 22 CITATIONS

[SEE PROFILE](#)



**Romina Kabranova**

Ss. Cyril and Methodius University in Skopje

18 PUBLICATIONS 7 CITATIONS

[SEE PROFILE](#)



**Ilija Risteski**

University "St. Kliment Ohridski" - Bitola

53 PUBLICATIONS 30 CITATIONS

[SEE PROFILE](#)

Some of the authors of this publication are also working on these related projects:



Journal of Agriculture and Plant Sciences: [View project](#)

**TASTING PROPERTIES OF SOME BASMAK TOBACCO VARIETIES**Karolina Kochoska <sup>1</sup>, Milan Mitreski <sup>1</sup>, Romina Kabranova <sup>2</sup>, Ilija Risteski <sup>1</sup>*1. "St. Kliment Ohridski" University – Bitola, Scientific Tobacco Institute – Prilep, Republic of Macedonia**2. Faculty of Agricultural Sciences and Food Ss. "Cyril and Methodius", Skopje, Republic of Macedonia**karolina\_kocoska@yahoo.com***ABSTRACT**

Tasting properties of tobacco are one of the most important parameters that determine the quality of tobacco smoking. Investigations of these properties were performed in 2009, 2010 and 2011 with one variety of Yaka tobacco (YK 7-4/2 Ø) and three varieties of the oriental type Basmak (MK-1, MB-2, MB-3). Tasting properties of tobacco varieties were evaluated by the Taste panel of Tobacco Institute – Prilep, composed of seven members, by the method of "anonymous tasting" according to the standards and the "Key for taste evaluation of oriental aromatic tobacco". The aim of this paper was to make comparative investigation on tasting properties of some varieties of Basmak tobacco grown under same conditions and to mark all the differences among them. The best average results regarding the investigated properties were obtained in the variety MK-1 (68.39 points). The Taste panel agreed that all investigated varieties show good tasting properties typical of oriental tobacco, but MB-2 and MB-3 are the most prominent among them. The investigations show that Basmak varieties, due to their good tasting characteristics, can be successfully grown in the Republic of Macedonia.

**Keywords:** Oriental, Nicotiana Tabacum L., testing, type.

**ДЕГУСТАТИВНИ СВОЈСТВА НА НЕКОИ СОРТИ ТУТУН ОД ТИПОТ БАСМАК**

Дегустационите својства на тутунот се еден од најважните параметри кои го одредуваат квалитетот на тутунот во пушењето. Испитувањата на овие својства се извршени во 2009, 2010 и 2011 година на една сорта од типот Јака (YK 7-4/2 Ø) и три сорти од ориенталскиот тип Басмак: МК-1, МБ-2, МБ-3. Дегустативните својства на испитуваните сорти тутун беа оценети од страна на Дегустативна комисија од Институтот за тутун - Прилеп, составен од седум члена, со методот на "анонимна дегустација" според одреден стандард и "Клуч за оценка на вкус на ориентален ароматичен тутун", овој труд требаше да направи компаративна истрага за дегустационите својства кај некои сорти тутун Басмак, одгледувани под исти услови и да ги обележат сите разлики меѓу нив. Најдобрите просечни резултати во однос на испитуваните својства беа добиени во сортата МК-1 (68,39 поени). Заедничкото мислење за Дегустацијата е дека сите испитувани сорти

покажуваат добри дегустациони својства кои се типични за ориенталниот тутун, меѓутоа МБ-2 и МБ-3 се најистакнати меѓу нив. Истражувањата покажаа дека сортите од типот Басмак, поради нивните добри дегустативни карактеристики, може успешно да се одгледува во Република Македонија.

**Клучни зборови:** ориенталски, (*Nicotiana Tabacum L.*), тестирање, тип

## INTRODUCTION

Tobacco is one of the most important industrial crops in the world. Due to the strong anti-smoking campaign, its consumption in developed countries declines, but in developing countries it increases. All products that are consumed by humans are in solid or liquid state, only tobacco is used in a form of smoke which is produced in combustion during the transition from solid to gaseous state. Tobacco is commonly used in a form of processed products: cigarettes, cigarillos, cigars and pipe tobacco, and very little for chewing and snuffing. The most important tasting properties of tobacco are the physiological-tasting quality, aroma, strength and flavor of the smoke and they all have a great impact on quality evaluation. According to Sozonovic (1960), the quality of tobacco depends on interrelations among complex chemical matters in tobacco leaf and capability of the products for combustion of these matters. Therefore, it is not possible to determine the quality of tobacco by technical measures. Chemical analysis can not provide complete estimation of quality according to the content of certain components. Also, the organoleptic assessment does not give objective picture of tobacco quality, because the properties of tobacco and tobacco products are finally completed during combustion of tobacco in the process of smoking, through the smoke effect on senses. Therefore, the final estimation of tobacco quality can be made only by experimental smoking, i.e. degustation. The properties of tobacco evaluated through sensory analysis, especially the physiological effect, strength, flavor and aroma, depend not only on the properties and composition of tobacco blend, but also on some technological factors, technical solutions, methods of smoking, etc. The term degustation (Lat. *degustatio* – taste and aroma evaluation) denotes systematic investigation of human's response to physical and chemical properties of tobacco smoke. Characteristics of tobacco manifested while smoking are called tasting properties (Uzunoski, 1985). According to (Boceski, 2003), the smoker receives “emotional satisfaction and pleasure”. Alic-Dzemidjic et al. (1999) reported that chemical composition of tobacco and conditions of burning have a strong impact on smoke properties. (Nuneski I. and Nuneski R., 2009) stated that all products of smoking are intended to give the smoker pleasant aroma and taste, as well as physiological pleasure. The aim of this paper was to make comparative investigation on tasting properties of some varieties of Basmak tobacco grown under same conditions and to mark all the differences among them.

## MATERIAL AND METHOD

Degustation as a method for quality assessment of tobacco and tobacco products is based on the properties manifested during smoking (irritation, taste, aroma and physiological strength). The material used for comparative investigation of tasting properties consisted of one variety of Yaka

tobacco (YK 7-4/2 Ø) and three varieties of the oriental type Basmak (MK-1, MB-2, MB-3). Raw tobacco from the 2009, 2010 and 2011 crop was used for investigation purposes. The trial was set up at the experimental field of Tobacco Institute - Prilep. Tasting properties of tobacco varieties were evaluated by the Taste panel of Tobacco Institute – Prilep, composed of seven members, by the method of "anonymous sensory evaluation" according to the standard rules and the "Key for taste evaluation of oriental aromatic tobacco". The above evaluation also included investigation on cigarette combustibility. Although it is a characteristic of the raw material rather than smoke, it still needs to be monitored because of its interactive impact on tobacco smoke. Cigarettes made from tobacco of the above four varieties were coded (sampled by belts). The sensory evaluation of the twelve codes was done separately for each year of research. The following tasting properties were analyzed: irritation, taste, aroma, strength, combustion and ash compactness. At the end, the total number of points for the analysed properties was calculated.

## RESULTS AND DISCUSSION

Irritation is a sensation felt when tobacco smoke passes through the mouth, throat and nose. Scoring was based on the following sensations: astringency, smoothness, burning, pricking, and harshness of the smoke. Some authors note this feature as a harshness of taste.

- Tasting properties by varieties and belts are presented in Table 1. The points for irritation ranged from 15.02 in the lower zone of YK 7-4/2 to 16.97 in the middle belt of MB-2. According to the scoring, varieties MK-1, MB-2 and MB-3 in the middle and upper belt were characterized by the following sensations: smoothness, no irritation while smoking, no burning, no scratching and no coating of the oral cavity. The points for irritation of the three belts ranged from 15.56 in YK 7-4/2 to 16.29 in MB-2 variety, which is 4.69% more than the check. Varieties that do not irritate during smoking are MB-2 with 16.29 and MK-1 with 16.17 points.

- The taste of tobacco smoke can be mild, bitter and sour, but by combining these sensations it can vary from very pleasant, pleasant to unpleasant.

In investigations by belts, the number of points received for the taste of tobacco smoke ranged from 14.43 in the lowest belt of MB-3 to 16.68 in the middle belt of MK-1. In average, the lowest number of points for this character was given to the check variety YK 7-4/2 (15.16 points) and the highest in variety MK-1 (15.77), which is 4.02% more than the check.

- The aroma of tobacco smoke is primarily a result of combustion of the aromatic complex in tobacco, i.e. resins, essential oils, polyphenols and other constituents. The lowest number of points received for this character was recorded in the lower belt of the check variety YK 7-4/2 (13.12) and the highest number of points was given to the upper belt of the MK-1 (16.34) and MB-2 (16.33).

The average values for this character ranged from 14.58 points in YK 7-4/2 to 15.45 points in MK-1, which is 6.70% more than the check. Upper belts of the varieties MK-1 and MB-2 are distinguished by a very fine, pleasant, penetrating and strongly expressed aroma (bouquet). According to the average values for the three belts, the raw material of these varieties gives a pleasant aroma and a clean refreshing smoke.

- With regard to the strength of smoke, the lowest score for this character (12.02) was obtained in the upper belt of the check variety YK 7-4/2, and the highest (13.53) in the middle belt of MB-2 variety. Also, the average value for this character ranged from 12.77 in YK 7-4/2 to 13.35 in MB-2. According to the points obtained, these varieties give a medium-strength raw material.

- The average number of points for cigarette combustion was the highest in MB-2 variety (4.02), which is a sign of good combustibility.

For compactness of ashes, MK-1 and MB-2 received equal points (3.92), according to which they are close to tobaccos with light gray and compact ashes.

**Table 1. Tasting properties of tobacco by belts (points)**

VARIETY	Belts	Average values 2009-2011					
		Irritation	Taste	Aroma	Strength	Combustibility	Compactness of ashes
JK 7-4/2 Ø	lower	15.02	14.67	13.12	13.15	3.73	3.75
	middle	15.88	15.27	15.16	13.15	4.00	4.00
	upper	15.77	15.54	15.46	12.02	3.80	3.73
	<b>Average</b>	<b>15.56</b>	<b>15.16</b>	<b>14.58</b>	<b>12.77</b>	<b>3.84</b>	<b>3.83</b>
	<b>Index</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>
MK-1	lower	15.52	14.73	14.25	13.07	3.60	3.77
	middle	16.66	16.68	15.76	13.28	4.00	4.00
	upper	16.33	15.90	16.34	13.13	4.00	4.00
	<b>Average</b>	<b>16.17</b>	<b>15.77</b>	<b>15.45</b>	<b>13.16</b>	<b>3.87</b>	<b>3.92</b>
	<b>Index</b>	<b>103.92</b>	<b>104.02</b>	<b>105.97</b>	<b>103.05</b>	<b>100.78</b>	<b>102.35</b>
MB-2	lower	15.50	14.57	13.53	13.30	3.90	3.83
	middle	16.97	16.10	15.83	13.53	4.10	4.07
	upper	16.40	15.87	16.33	13.23	4.07	3.87
	<b>Average</b>	<b>16.29</b>	<b>15.51</b>	<b>15.23</b>	<b>13.35</b>	<b>4.02</b>	<b>3.92</b>
	<b>Index</b>	<b>104.69</b>	<b>102.31</b>	<b>104.46</b>	<b>104.54</b>	<b>104.69</b>	<b>102.35</b>
MB-3	lower	15.40	14.43	13.25	13.27	3.87	3.63
	middle	16.23	15.73	15.70	13.30	4.03	4.00
	upper	16.23	15.47	15.77	13.03	3.83	3.88
	<b>Average</b>	<b>15.95</b>	<b>15.21</b>	<b>14.91</b>	<b>13.20</b>	<b>3.91</b>	<b>3.84</b>
	<b>Index</b>	<b>102.51</b>	<b>100.33</b>	<b>102.26</b>	<b>103.37</b>	<b>101.82</b>	<b>100.26</b>

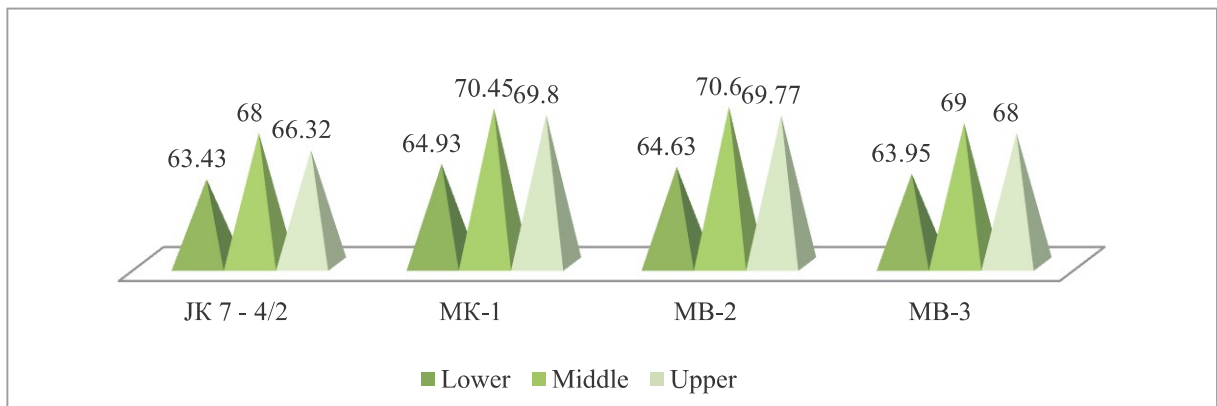
Data in Table 2 and Fig. 1 show that total number of points ranges from 62.80 in the lower belt of the check variety YK 7-4/2 in 2009 to 72.20 in the middle belt of MB-2 variety, also in 2009. The average number of points in the three belts the ranges from 63.43 in the lower belt of YK 7-4/2 to 70.60 in the middle belt of MB-2 variety. These data lead to the conclusion that the best tasting properties were recorded in the raw material from the middle belt, then in the upper and finally in the lower belt.

The average number of points from the three belts in the check variant was 66, while in other varieties it ranged from 67 to 68 points ( Figura 2 ).

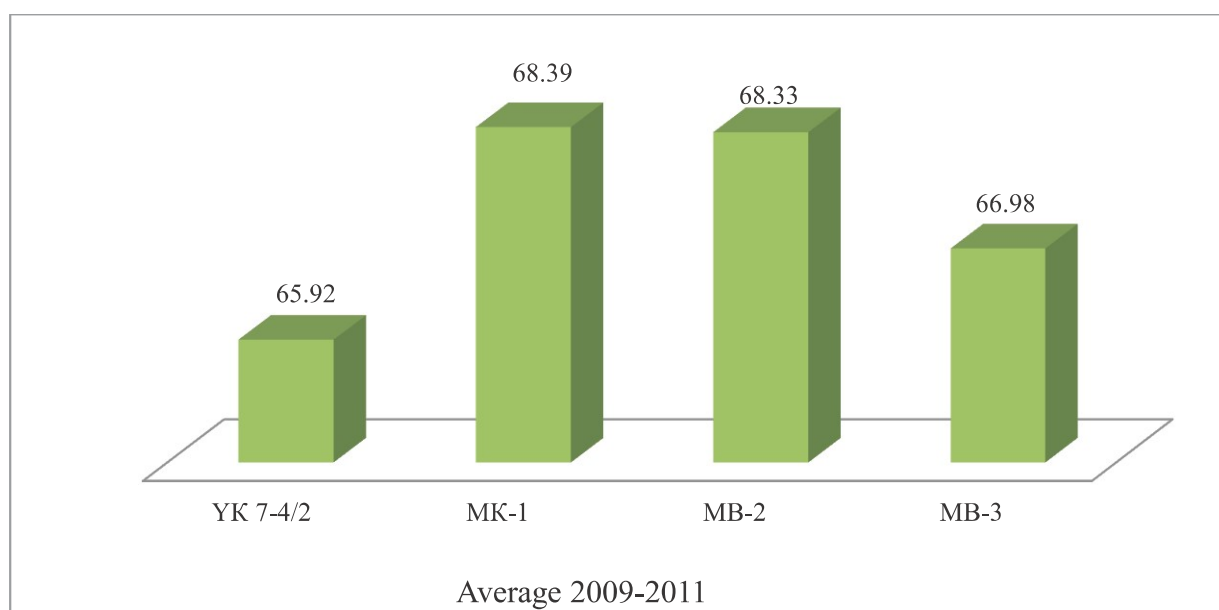
According to the total number of points, the first three in the rank were raw materials of the varieties MK-1, MB-2 and MB-3, while the check variety YK 7-4/2 ranked fourth.

**Table 2. Tasting properties of tobacco varieties by belts (average)**

No.	Variety	Belt	Year of investigation			Average Points	Rank	Average points in the three belts	Rank
			2009	2010	2011	Rank			
1	YK 7-4/2 Ø	lower	62.80	64.50	63.00	<b>63.43</b>	11	<b>66</b>	<b>4</b>
2		middle	69.80	68.01	66.20	<b>68.00</b>	6		
3		upper	67.20	66.86	64.90	<b>66.32</b>	7		
4	MK-1	lower	63.80	65.70	65.30	<b>64.93</b>	8	<b>68</b>	<b>1</b>
5		middle	71.00	70.14	70.20	<b>70.45</b>	2		
6		upper	70.30	69.51	69.60	<b>69.80</b>	3		
7	MB-2	lower	64.20	64.90	64.80	<b>64.63</b>	9	<b>68</b>	<b>2</b>
8		middle	72.20	70.20	69.40	<b>70.60</b>	1		
9		upper	71.80	69.20	68.30	<b>69.77</b>	4		
10	MB-3	lower	63.30	64.55	64.00	<b>63.95</b>	10	<b>67</b>	<b>3</b>
11		middle	70.00	69.60	67.40	<b>69.00</b>	5		
12		upper	69.20	68.30	66.50	<b>68.00</b>	6		



**Fig.1 - Tasting properties of tobacco raw by belts (average 2009-2011)**



**Fig. 2. Average number of points for the three belts**

## CONCLUSIONS

Based on the three-year investigations of tasting properties with three varieties of tobacco type Basmak and the check variety YK 7-4/2, the following conclusions can be drawn:

- The best variety with regard to tasting properties, which obtained the highest number of points was the check MK-1 (68.39), while the lowest number of points was given to MB-2 variety (68.33).
- General statement of the Taste panel is that all tobacco varieties included in the research show good tasting properties, typical for tobacco of oriental origin, but the varieties MK-1 and MK-2 deserve special emphasis.
- The investigated varieties of Basmak tobacco can be successfully included in blends for production of the highest quality cigarette brands in the world.

## REFERENCES

1. Alić-Đemidžić N., Beljo J., Đemidžić M., 1999. Tehnologija obrade i prerade duhana. Fabrika duhana - Sarajevo.
2. Боцески Д., 2003. Познавање и обработка на тутунската суровина. Институт за тутун – Прилеп, II Дополнително издание.
3. Нунески И., Нунески Р., 2009. Дегустационите својства како еден од методите за вреднување на тутунот и тутунските преработки. Тутун/Tobacco, 7-8, 181-192. Прилеп.
4. Созоновик Н., 1960. Дегустацијата како метод за проценка на квалитетот на тутунот. . Тутун/Tobacco, 12, 139-148. Институт за тутун – Прилеп.
5. Узуноски М., 1985. Производство на тутун. Стопански весник. Скопје.