

SEED CONDITIONING HIGH AGASTACHE FOENICULUM (PURSH) KUNTZ USING PLANE SIEVE METHOD

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Abstract. *Agastache foeniculum (Pursh) Kuntz is a perennial, herbaceous medicinal and spice member of Lamiaceae family. It has an anise-like scented essential oil which is mainly biosynthesized in the leaves and flowers of the decorative plant. It has been reported that the leaves and inflorescences of this plant to be used in herbal teas, cakes, sweets, salads and desserts also the leaves to be used for treating heart conditions, chest pain, for inducing sweating to reduce fever and in poultices. Using separate machine RETSCH AS 300, we tried separating the seed grain than hes mall grain species Agastache foeniculum (Pursh) Kuntz. During the screening factor (5 minutes) is negative compared to the control, separation than small seeds. Amplitude factor and a very positive influence on the amount of seed remaining on the sieve than 1.*

Keywords: *Agastache foeniculum (Pursh) Kuntz, medicinal, culinary herb, seeds.*

INTRODUCTION

Agastache foeniculum (Pursh) Kuntz is a perennial, herbaceous medicinal and spice member of Lamiaceae family. It is native to the Great Plains of the United States and Canada which is cultivated in the Mediterranean region and north and central Europe. It has an anise-like scented essential oil which is mainly biosynthesized in the leaves and flowers of the decorative plant.

It has been reported that the leaves and inflorescences of this plant to be used in herbal teas, cakes, sweets, salads and desserts also the leaves to be used for treating heart conditions, chest pain, for inducing sweating to reduce fever and in poultices. The essential oil has been demonstrated to possess antimicrobial and antifungal activity.

MATERIAL AND METHOD

The experiment was conducted in the Laboratory "Transfer Phenomena and Unitary Operations in Food Industry Department III of Mechanizations USAMV Cluj-Napoca. Experimental factors were taken into study:

Factor A- during the separation-of graduations:

-a₁ - 1 minute

-a₂ - 3 minutes

-a₃ - 5 minutes

Factor B-amplitude separation-of graduations:

-b₁ – 0,2 mm

-b₂ - 1 mm

-b₃ – 2,2 mm

The material was the dry seeds of *Agastache foeniculum (Pursh) Kuntz (Fig. 2)* harvested in 2011, each sample had 11g. For conditioning, special equipment was used,

with timer and variable amplitude. Using RETSCH AS 300 equipment to separate (Fig. 1) the seed high than the small grain species *Agastache foeniculum* (Pursh) Kuntz.

For the measurements were made on the amount of material on a sieve with 0,63 mm diameter (for large seeds) and sieve 2 with diameter of 0,44 mm (for small seeds).



Fig. 1 RETSCH separate machine AS 300 Fig. 2 Seeds *Agastache foeniculum* (Pursh) Kuntz

RESULTS AND DISCUSSION

The results concerning the influence of time sifting the large quantity of seeds collected on a filter diameter of 0,63 mm are presented in Table 1. As shown in Table 1 during screening (5 minutes) is negative compared to the control (one minute) by analyzing variation. The Duncan test can be observed the same difference.

Table 1
Influence of time sifting the large quantity of seeds *Agastache foeniculum* (Pursh) Kuntz collected on a sieve 1 (Ø 0.63 mm)

Time (minutes)	The average amount of large seeds collected on the sieve (g)	The difference		Significance	Duncan Test
		(%)	(g)		
1	10,40	100	0	Mt	B
3	10,33	99,3	-0,07	-	AB
5	10,25	98,6	-0,15	0	A
DL (p 5%)		0,13		DS 0,13	
DL (p 1%)		0,22			
DL (p 0.1%)		0,41			

The results concerning the influence of screening on the amplitude large quantity of seeds collected on a sieve 1 are shown in Table 2.

As can be seen from Table 2 amplitude very significantly influence the amount of screening material collected on the sieve with a diameter of 0,63 mm. For amplitude of 1mm, the difference is very significant from the control recorded an additional 0,66 g maximum amplitude of 2,2 mm, is very significant to witness large amount of seed

collection on the sieve increases with 0,48 grams. So amplitude factor influencing the amount of material remaining on a sieve 1. Duncan test of the same differences can be observed.

Table 2
Influence amplitudes of screening large quantity of seeds *Agastache foeniculum* (Pursh) Kuntz collected on a sieve 1 (Ø 0.63 mm)

The amplitude of sieving (mm)	The average amount of large seeds collected on the sieve (g)	The difference		Significance	Duncan Test
		(%)	(g)		
0,2	9,94	100	0	Mt	A
1	10,60	106,7	0,66	***	C
2,2	10,43	104,9	0,48	***	B
DL (p 5%)		0,13			DS 0,13
DL (p 1%)		0,18			
DL (p 0.1%)		0,25			

CONCLUSIONS

Sieving time (5 minutes) is negative compared to the control (1 minute). For amplitude of 1 mm, the difference is very significant from the control recorded an additional 0,66 g maximum amplitude of 2,2 mm, is very significant to witness large amount of seed collection on the filter increases with 0,48 grams. Therefore amplitude factor influencing the amount of material remaining on a sieve 1.

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