

Hyssop officinal

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3

5 4

8 5 3

5 4 3

15 4 3

%4

6 5 2

2

13 9

9 5

.17 16 14 9 8 6 2 13 11 10 5 1 7 4 3

2 17 16 15 13 12 11 9 8 6 1

1 5 14 10 7 4 3

16 7 5 2 17 15 14 13 12 11 10 9 8 6 4 3

10 3 1

.17 15 14 13 12 9 8 7 6 5 4 2 16 11

7 5 3 13 12 11 9 8 6 4 2 1

17 16 15 14 10

14 13 9 3 2 12 11 10 8 7 5 6 1

.4 17 16 15

3 1

10 8 7 5 4 17 16 15 14 12 11 9 6

13 2

14 13 12 11 9 8 6 2 1

5 15 10 4 3 17 16

15 10 7

13 5 3

6.40

13.776

0.324

5.79

0.053

(leguminsee)

%40 -20

(18)

.(16 13)

(2 24)

.(21 12)

(broad bean)

(6)

.(4 1) (facia)

(chick pea)

(14)

.(17 15 19)

(cowpea)

-17.57

%8.26 -3.60

%5.63 -1.25

%21.85

.(9) %60.41 -58.41

%5.17 -3.44

.(8)

.(8)

()

.(8)

Hyssopus officinalis

50

Aphiline

Aphillidine

Anabasine

(5 11 20 8)

AOAC
(10)

8

2500

300

%4

()

%0.2 %0.15 %0.1 %0.05

:

SAS 2001

)

± ()

(

23) L.S.D.

.(22

(3)

14 13 12 11 10 9 7 6 5 2 1

189

17 16

13

45

1

%0.2

100

15 8 4 3

50

%0.1

15

%4

3

15 8 4 3

9 7 6 4 2 1

17 16 15 14 13 12 11 10

9

48

1

175

													%0.2														%0.2														13																												
													8	5	3														5	122														%0.15																									
8														50														1														%0.2																											
8	5	3														58	54														4	3														13																							
													1														1														%0.2														13														
6	5	2	1														1														1														%0.2														13										
													17	16	15	14	13	12	11	10	9	8	7														1														%0.2														13				
													48														1														185														%0.2														13
													58	54														4	3														13																										
													1														1														%0.2														13														
													13	8	5	4	3														1														%0.2														13										
													(7	3)														1														%0.2														13													

(5).

(1):

*a 2.89 ± 185	*14.43±175	*a 5.2±189		1
a 2.30 ± 124	a 5.78 ± 134	a 1.73 ± 127		2
b 2.31 ± 54	b 2.31 ± 56	b 2.9 ± 50	% 4	3
b 4.04 ± 58	a 3.46 ± 54	b 2.3 ± 59	% 4	4
a 2.89 ± 130	b 1.15 ± 122	a 2.9 ± 120	% 4	5
a 4.61 ± 75	a 3.46 ± 74	a 2.9 ± 75	% 0.05	6
a 5.19 ± 69	a 2.89 ± 60	a 2.9 ± 60	% 0.1	7
a 3.47 ± 61	b 1.15 ± 50	b 1.15 ± 52	%0.15	8
a 2.89 ± 50	a 1.73 ± 48	a 1.73 ± 47	%0.2	9
a 1.73 ± 72	a 3.46 ± 69	a 1.73 ± 68	% 0.05	10
a 2.31 ± 64	a 2.30 ± 58	a 2.89 ± 60	%0.1	11
a 2.89 ± 50	a 1.73 ± 52	a 2.9 ± 55	%0.15	12
a 1.73 ± 48	a 2.30 ± 48	a 2.91 ± 45	%0.2	13
a 2.89 ± 120	a 2.89 ± 125	a 4.61 ± 123	%0.05	14
ab 4.64± 107	a 1.61 ± 112	b 5.77 ± 100	%0.1	15
a 4.03 ± 86	a 2.33 ± 84	a 2.9 ± 80	%0.15	16
a 1.73 ± 62	a 2.9 ± 70	a 2.14 ± 67	%0.2	17
**13.776	**16.091	**14.88	**L.S.D	

*

. p < 0.0001

. p < 0.05**

													(2)		
9		43.8							13	9	6	5	2		
	6		27.85										%0.2		
													. %0.05		
	11	10	7	4	3	1									
1		39.6								16	15	14	13	12	
			%0.2							17		13.7			
	7	4	3	1	13	9	6	5	2						
													.8		
									16	15	14	13	12	11	10
1															
	17	16	15	14	13	12	11	10	9	8	7	6	4	3	
	18.2				1			38.9							
			9	5	2							17			
	5		31.8							9		36.11			
													9		
						9	5	2							
	12	11	10	5	1										
		26.1							1		40.75				
	16	15	14	9	8	6	2								
	17		15							2		35		17	
	31.3							7	4	3					
													7		
									23.4			4			

(7)

.(8)

:(2)

*a.43±40.75	*ab 0.25± 38.9	*b 0.35 ± 39.6		1
b 0.58 ± 35	b 0.46 ±33.8	a 0.17 ± 38.3		2
c 0.12 ± 24.2	a 0.4 ± 35.7	b 0.12 ± 31.2	% 4	3
c 0.17± 31.3	a 0.37 ± 37.6	b 0.46 ± 33.8	% 4	4
a 0.06 ±34.1	b 0.46 ± 31.8	a 0.23 ± 34.1	% 4	5
b 0.5 ± 33.85	a 0.52 ± 27.9	a 0.5 ± 27.85	% 0.05	6
c 0.23 ± 23.4	a 0.29 ± 27.5	b 0.46 ± 20.2	% 0.1	7
b 0.35 ± 22.6	a 0.24 ± 26.41	c 0.17±21.3	%0.15	8
b 0.46 ± 32.2	b 0.06 ± 36.11	a 0.40 ± 43.8	%0.2	9
a 0.06 ± 28.5	a 0.52 ± 28.9	b 0.46 ± 24.8	% 0.05	10
a 0.52 ± 26.1	a 0.11 ± 27.2	b 0.40 ± 23.3	%0.1	11
a 0.24 ± 27.9	a 0.11 ±29.2	b 0.23 ± 24.4	%0.15	12
a 0.23 ± 31.5	a 0.1 ±31.2	a 0.46 ±32.8	%0.2	13
b 0.35 ± 18.4	a 0.46 ± 24.8	b 0.46 ± 18.8	%0.05	14
b 0.23 ± 19.6	a 0.46 ± 21.8	b 0.17 ± 17.3	%0.1	15
b 0.29 ± 15.4	a 0.06 ± 19.1	b 0.35 ± 15.6	%0.15	16
b 0.3 ± 15	a 0.12 ± 18.2	b 0.40 ± 13.7	%0.2	17
**8.07	**6.40	**9.382	**L.S.D	

*

. p < 0.0001

. p < 0.05**

(3)

17 16 15 13 12 11 9 8 6 1
17.8 11 21.5

:(3)

b 0.11 ± *15.2	*a0.35 ± 18.6	*a0.11 ± 18.2		1
a 0.35 ±23.6	b 0.23 ± 22.4	b 0.08 ± 22.08		2
b0.23 ± 27.8	a 0.52 ± 28.9	b 0.23 ± 27.4	% 4	3
a 0.40 ±27.7	a 0.17 ± 28.3	b 0.4 ± 27.7	% 4	4
a 0.11 ± 25.2	b 0.06 ±24.1	c 0.06 ± 23.1	% 4	5
a 0.46 ± 20.8	a 0.40 ± 21.7	a 0.37 ± 20.6	% 0.05	6
a 0.35 ± 29.6	b0.52 ± 18.9	b 0.06 ± 19.1	% 0.1	7
a 0.52 ± 18.9	a 0.29 ± 18	a 0.12 ± 18.21	%0.15	8
a 0.35 ±18.6	a 0.17 ± 18.3	a 0.52 ± 18.9	%0.2	9
b 0.25 ± 20.9	a0.06 ±22.1	b 0.12 ± 21.2	% 5.05	10
b 0.58 ± 19	a0.06 ±20.1	a 0.29 ± 21.5	%0.1	11
a 0.29 ± 18.5	a 0.29 ± 18.5	a 0.52 ± 18.9	%0.15	12
a 0.4 ± 18.7	a 0.17 ±18.3	a 0.46 ± 17.8	%0.2	13
a 0.52 ± 21.9	a 0.17 ±21.3	b 0.06 ± 20.1	%0.05	14
a 0.12 ±20.2	a 0.46 ±19.8	a 0.29 ± 18.5	%0.1	15
b 0.40 ± 17.7	b 0.20 ±16.35	a 0.29 ± 18	%0.15	16
a 0.11 ±15.2	a 0.46 ±15.8	a 0.12 ± 15.2	%0.2	17
**6.26	**5.79	**8.075	**L.S.D	

*

. p < 0.0001

. p < 0.05**

(4)												
13	12	11	9	8	6	4	2	1				
%4	4				2			2.9				
		1		1.6								
	1.5				10	7	5	3				
0.8							%0.05		10			
14							%4	3				
	14		0.2						17	16	15	
16	15								%0.05			
									.0.1		17	
8	7	6	5	1								
	5		2.9						12	11	10	
	12		%0.15				8		1.9			
							%0.15					
			17	16	15	14	13	9	3	2		
16	3		0.9			9	2		1.9			
	.4										17	
9	6	3	1									
	3		2.8			17	16	15	14	12	11	
			% 0.15			12			1.8			
	10	8	7	5	4							
		8		0.6			4		2.1			
	13		1.2			13	2					
							2		0.91			
.(8)												

(5).

(4):

*a0.12 ± 1.9	*a0.17 ± 1.7	*a0.11 ± 1.6		1
c 0.06 ± 0.91	b 0.12 ± 1.9	a 0.06 ± 2.9		2
a 0.12 ± 2.8	b 0.06 ± 0.9	b 0.1 ± 0.8	% 4	3
b 0.06 ± 2.1	c 0.17 ± 1.7	a 0.02 ± 2.9	% 4	4
b 0.04 ± 0.86	c 0.17 ± 2.9	b 0.17 ± 0.86	% 4	5
a 0.11 ± 2.3	a 11.1 ± 2.4	a 0.06 ± 2.4	% 0.05	6
b 0.06 ± 1	a 0.06 ± 2.2	a 0.06 ± 1	% 0.1	7
b 0.8 ± 0.6	a 0.12 ± 1.9	a 0.17 ± 1.9	%0.15	8
a 0.17 ± 2.7	b 0.06 ± 1.9	a 0.14 ± 1.7	%0.2	9
b 0.0 ± 2	a 0.12 ± 2.2	b 0.14 ± 1.5	% 0.05	10
a0.11 ± 1.9	a 0.06 ± 2.1	a 0.17 ± 2.3	%0.1	11
a0.12 ± 1.8	a 0.06 ± 1.9	a 0.17 ± 2.3	%0.15	12
c 0.06 ± 1.2	b 0.03 ± 1.7	a 0.29 ± 2.5	%0.2	13
a 0.12 ± 2.4	b 0.06 ± 1.1	c 0.0 ± 0.2	%0.05	14
a 0.06 ± 2.1	b 0.6 ± 1	c 0.006 ± 0.1	%0.1	15
a 0.06 ± 1.9	b 0.06 ± 0.9	c 0.006 ± 0.1	%0.15	16
a 0.17 ± 2.3	b 0.06 ± 0.9	c 0.006 ± 0.1	%0.2	17
**0.593	**0.324	**0.603	**L.S.D	

*

. p < 0.0001

. p < 0.05**

(5)

17	16	14	13	12	11	9	8	7	6	2	1				
		%0.1					7			2.9					
3						.14	11	9	8		1.1				
	15		1.3							15	10	4			
	3		0.9							%0.1					
										. %4					
										.5					
6	5	4	3	2	1										
2.9						17	16	14	13	12	11	9	8		
	%4			5			0.94					13			
6	4	2	1												
2.9						17	16	15	14	12	11	10	9	8	7
13	5	3								.15	7	4			
		%4					3			1.3					
						%4				5		0.73			

(5)

.(5)

:(5)

*a0.11 ± 2.5	*a0.29 ± 2.5	*a0.17 ± 2.3		1
a 0.06 ± 1.2	b 0.17 ± 1.3	a0.11± 1.5		2
b 0.8 ± 1.3	a 0.17 ± 1.9	b 0.06 ± 0.9	% 4	3
a 0.17 ± 2.9	a 0.12 ± 2.8	b 0.03± 1.25	% 4	4
b 0.2 ± 0.73	a 0.03 ± 0.94	c 0.02± 0.54	% 4	5
a 1.1 ± 1.3	a 0.17 ± 1.3	a 0.03 ± 1.3	% 0.05	6
b 0.17 ± 2.9	b 0.14 ± 1.5	a 0.06 ± 2.9	% 0.1	7
a 0.06 ± 1.1	a 0.17 ± 1.3	a 0.06 ± 1.1	%0.15	8
a 0.06 ± 1.1	a 0.06 ± 1.1	a 0.06 ± 1.1	%0.2	9
a 0.06 ± 2.1	b 0.17 ± 1.3	b 0.06 ± 1	% 0.05	10
a 0.06 ± 1.5	a 0.17 ± 1.3	a 0.06 ± 1.1	%0.1	11
a 0.12 ± 1.2	a 0.14± 1.5	a 0.06 ± 1.2	%0.15	12
b 0.06 ± 1.1	a 0.17 ± 1.9	a 0.12± 1.8	%0.2	13
a 1.1 ± 1.3	a 0.06 ± 1.1	a 0.06 ± 1.1	%0.05	14
a 0.18 ± 2.9	b 0.17 ± 1.3	b 0.06 ± 1.3	%0.1	15
a 0.07 ± 1.1	a 0.17 ± 1.3	a 0.12± 1.4	%0.15	16
a 0.7 ± 1.1	a 0.14 ± 1.5	a 0.14± 1.5	%0.2	17
**0.078	**0.072	**0.053	**L.S.D	

*

. p < 0.0001

. p < 0.05**

) (6)

(7

* (1)

%9.73		1
5.42		2
		3
242.8		4
7.38		5
1.18	%	6
1.3	%	7

/ %4 *

:(2)

*	
9.81	
8.57	

*

.1

() .2

.3 - -

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The Effect of Use of "Sodium Bicarbonate " and "Hyssop Officinal" in the Cooking period , and the Nutrition Ingredients for the Cooked Legumes

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Abstract

The study aims to clarify the use of the sodium bicarbonate and Hyssop officinal in the cooking period, and the nutrition ingredients for the cooked legumes. The results showed abstract differences between the treatments no. 3, 4 and 5 and between the remaining treatments of the beans. So as the been it showed abstract differences between treatments no. 3, 5 and 8 and the other treatments, so as lentil the abstract differences shown between the treatments no. 3, 4 and 15 and the rest of the treatments. Providing that, the treatments 3, 4 and 5 are the treatments that used the herb the 4% percentage being added to the drenching water and the cooking water. While wetness percentage of bean showed abstract differences between the treatments 2, 5, 6, 9 and 13 and the rest of treatments. Been also showed abstract differences between the treatments 2, 5 and 9 and the rest of the treatments. While for lentil the abstract differences are between the treatment 3, 4 and 7 and between 1, 5, 10, 11 and 13 and between 2, 6, 8, 9, 14, 16 and 17.

The results also referred to the bean content of protein with abstract differences between treatments 1, 6, 8, 9, 11, 12, 13, 15, 16, 17 and between 2, 3, 4, 7, 10, 14 and between 5, while in been the abstract differences appeared between treatments 1, 3, 4, 6, 8, 9, 10, 11, 12, 13, 14, 15, 17 and between 2, 5, 7, 16. While for lentil the abstract differences noticed between treatments 1, 3, 10, 11, 16 and between 2, 4, 5, 6, 7, 8, 9, 12, 13, 14, 15 and 17.

Moreover, the legumes content of fat refers that with been the abstract differences are between the treatments 1, 2, 4, 6, 8, 9, 11, 12, 13 and between 3, 5, 7, 10 and between 14, 15, 16, 17. While for been the abstract differences are between 1, 5, 6, 7, 8,

10, 11 and 12 and between 2, 3, 9, 13, 14, 15, 16 and 17 and between 4. The results also referred according to lentil the abstract differences are between 1, 3, 6, 9, 11, 12, 14, 15, 16, 17 and between 4, 5, 7, 8, 10 and between 2, 13. Legumes content of ash in beans the results referred that the abstract differences between treatments 1, 2, 6, 8, 9, 11, 12, 13, 14, 16, 17 and between 3, 4, 10, 15 and between 5. While for been the abstract differences are between treatments 7, 10, 15 and the rest of the treatments. The same is also true for lentil the abstract differences are between treatments 3, 5, 13 and the rest of the treatments. In general the effect of the *Hyssop officinal* on legumes was clear compared with sodium bicarbonate, that is why the herb is considered a good material in legumes cooking to the fasten the process and reduce the time needed for it. In addition to that the alimentary material has a good taste which improves the feature of the materials that it added to.

The differences was also discovered between the three types of legumes, the lower differences according to cooking duration for the benefit of lentil 13.776 for wetness factor for the benefit of been 6.40. Protein element reached 5.79 for lentil benefit. Finally, fat element reached 0.324 for been benefit and reached 0.053 for beans for the ash element.