

University of Brighton
 Hospitality Research


solar cooker experiment

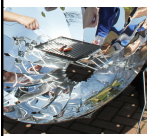
SOLAR SAUSAGES of the SUNSHINE COAST!

Perceptions of solar cooking in a developed economy; the changing nature of hospitality consumers.

Your interpretation of results from the Sunshine Coast (not Greece but UK sorry!)

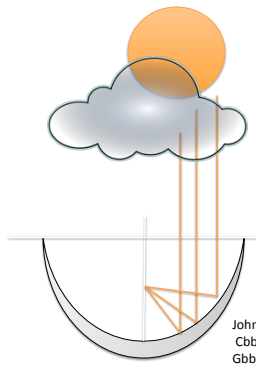
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How does it work?

Sun rays coming in to the parabolic mirror are focused at point C. The mirror can be tilted left and right or up and down, ensuring maximum efficiency throughout the day, and can also be controlled to achieve varied temperatures!



Johnson 2009
 Cbbq=998kg
 Gbbq =349kg
 Solar = 0?



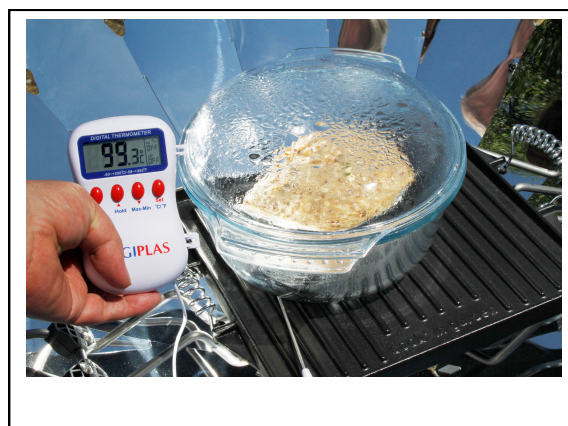
Solar Bread Experiment

Almost Cake like bread recipe – @ <http://sukrin.org>

The baking of bread in a **combination oven** and our **parabolic solar cooker!** <http://youtu.be/2cmX9bH6tyU>

40 completed questionnaires were collected by the team (6 partially completed – only 34 usable).

The solar bread took 3 hours to bake under semi cloudy conditions, and we achieved temperatures of over 90 degrees Celsius.



Evaluate the Bread (**sample B**) in front of you by looking at it and tasting it. Indicate how much you like or dislike the bread for each of the following attributes.

9point hedonic scale (Appearance, Texture (in mouth), Taste, Overall liking)

Descriptive Statistics					
	N	Mean	Std. Deviation	Minimum	Maximum
Appearance bread	34	6.6471	1.27641	4.00	9.00
Texture bread	34	5.9706	1.48702	4.00	9.00
Taste bread	34	6.1176	1.47226	3.00	9.00
Overall bread	34	6.0882	1.63980	2.00	9.00
Appearance solar	34	6.3235	1.45061	3.00	9.00
texture solar	34	5.7941	1.93500	1.00	9.00
taste solar	34	5.9706	1.83378	1.00	9.00
overall solar	34	5.9412	1.68863	2.00	9.00

<http://www.jk-research.com/services/medias/SupportPublications/TheUseofOnlineWebCafe-Paper1.pdf>

Ranks				
		N	Mean Rank	Sum of Ranks
Appearance solar - Appearance bread	Negative Ranks	14 ^a	9.32	130.50
	Positive Ranks	5 ^b	11.90	59.50
	Ties	15 ^c		
	Total	34		
texture solar - Texture bread	Negative Ranks	13 ^d	10.27	133.50
	Positive Ranks	9 ^e	13.28	119.50
	Ties	12 ^f		
	Total	34		
taste solar - taste bread	Negative Ranks	12 ^g	12.83	154.00
	Positive Ranks	11 ^h	11.09	122.00
	Ties	11 ⁱ		
	Total	34		
overall solar - overall bread	Negative Ranks	13 ^j	9.88	128.50
	Positive Ranks	8 ^k	12.81	102.50
	Ties	13 ^l		
	Total	34		

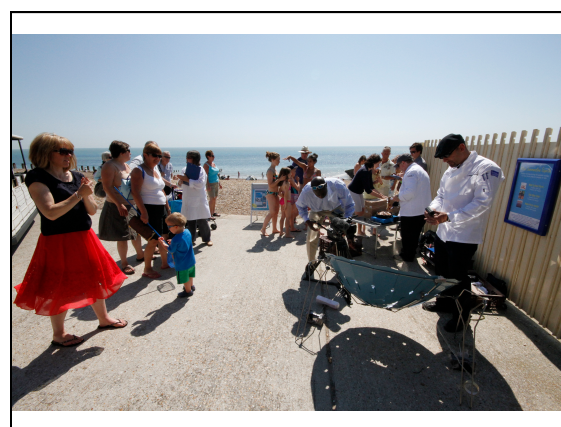
Test Statistics ^a				
	Appearance solar - Appearance bread	texture solar - Texture bread	taste solar - taste bread	overall solar - overall bread
Z	-1.467 ^b	-.230 ^b	-.495 ^b	-.461 ^b
Asymp. Sig. (2-tailed)	.142	.818	.621	.645

a. Wilcoxon Signed Ranks Test
b. Based on positive ranks.

Full Scale Experiment

Over 500 sausages eaten...why do I only have 67 completed surveys? ($67 * 2 = 134$ I am missing another 400 sausages!)

Answer: Solar Sausage Mayhem



	N	Mean	Std. Deviation	Minimum	Maximum
Appearance sausage	41	7.5610	1.48406	2.00	9.00
Texture sausage	41	7.6585	1.38942	2.00	9.00
taste sausage	41	7.7317	1.51698	2.00	9.00
overall sausage	41	7.7561	1.59343	1.00	9.00
Appearance solar	41	6.0244	1.75339	2.00	9.00
texture solar	41	6.3902	1.84225	2.00	9.00
taste solar	41	6.6829	2.19589	1.00	9.00
overall solar	41	6.7561	1.79973	2.00	9.00

Descriptive Statistics					
	N	Mean	Std. Deviation	Minimum	Maximum
Appearance sausage	67	7.4627	1.51085	2.00	9.00
Texture sausage	67	7.2687	1.47280	2.00	9.00
Taste sausage	67	7.3284	1.73544	2.00	9.00
Overall sausage	67	7.3284	1.70905	1.00	9.00
Appearance solar	67	6.6119	1.78338	2.00	9.00
Texture solar	67	6.8955	1.77640	2.00	9.00
Taste solar	67	7.1493	2.07623	1.00	9.00
Overall solar	67	7.1642	1.73727	2.00	9.00

Test Statistics ^a				
	Appearance solar - Appearance sausage	texture solar - Texture sausage	taste solar - taste sausage	overall solar - overall sausage
Z	-3.509 ^b	-3.260 ^b	-2.490 ^b	-2.892 ^b
Asymp. Sig. (2-tailed)	.000	.001	.013	.004

a. Wilcoxon Signed Ranks Test
b. Based on positive ranks.

Test Statistics ^a				
	Appearance solar - Appearance sausage	texture solar - Texture sausage	taste solar - taste sausage	overall solar - overall sausage
Z	-2.989 ^b	-1.199 ^b	-.454 ^b	-.604 ^b
Asymp. Sig. (2-tailed)	.003	.231	.650	.546

a. Wilcoxon Signed Ranks Test
b. Based on positive ranks.

Ranks				
		N	Mean Rank	Sum of Ranks
Appearance solar - Appearance sausage	Negative Ranks	35 ^a	29.99	1049.50
	Positive Ranks	18 ^b	21.19	381.50
Texture solar - Texture sausage	Ties	14 ^c		
	Total	67		
	Negative Ranks	29 ^d	28.24	819.00
Taste solar - taste sausage	Positive Ranks	23 ^e	24.30	559.00
	Ties	15 ^f		
	Total	67		
Overall solar - overall sausage	Negative Ranks	24 ^g	24.23	581.50
	Positive Ranks	22 ^h	22.70	499.50
	Ties	21 ⁱ		
Overall solar - overall sausage	Total	67		
	Negative Ranks	27 ^j	27.93	754.00
	Positive Ranks	25 ^k	24.96	624.00
Overall solar - overall sausage	Ties	15 ^l		
	Total	67		

PLACEBO EFFECT
(control group)



**Customers
"In love" with an IDEA...**

Test Statistics ^a				
	Appearance solar - Appearance placebo	Texture solar - Texture placebo	taste solar - taste placebo	overall solar - overall placebo
Z	-2.937 ^b	-3.488 ^b	-3.710 ^b	-3.904 ^b
Asymp. Sig. (2-tailed)	.003	.000	.000	.000

a. Wilcoxon Signed Ranks Test
b. Based on negative ranks.

Descriptive Statistics					
	N	Mean	Std. Deviation	Minimum	Maximum
Appearanceplacebo	32	6.7813	1.92997	3.00	9.00
Textureplacebo	32	6.7188	1.87056	3.00	9.00
tasteplacebo	32	6.7500	1.86651	4.00	9.00
overallplacebo	32	6.7500	1.77800	4.00	9.00
Appearance solar	32	7.9375	1.29359	3.00	9.00
texture solar	32	8.1250	.90696	6.00	9.00
taste solar	32	8.4062	.83702	6.00	9.00
overall solar	32	8.3125	.78030	6.00	9.00

Ranks				
		N	Mean Rank	Sum of Ranks
Appearance solar - Appearance placebo	Negative Ranks	6 ^a	6.17	37.00
	Positive Ranks	16 ^b	13.50	216.00
Texture solar - Texture placebo	Ties	10 ^c		
	Total	32		
	Negative Ranks	3 ^d	9.83	29.50
Taste solar - taste placebo	Positive Ranks	21 ^e	12.88	270.50
	Ties	8 ^f		
	Total	32		
Overall solar - overall placebo	Negative Ranks	1 ^g	9.50	9.50
	Positive Ranks	20 ^h	11.08	221.50
	Ties	11 ⁱ		
Overall solar - overall placebo	Total	32		
	Negative Ranks	3 ^j	6.50	19.50
	Positive Ranks	22 ^k	13.89	305.50
Overall solar - overall placebo	Ties	7 ^l		
	Total	32		

Qualitative

"...its better for the environment..."

"...it costs nothing man..."

"...its Healthier, I love it..."

".....WAO....this is so Sci-Fi....."

Some Final Thoughts

- Over-innovation vs back to basics-Innovation?
- How the overall experience changes perceptions
- Future developments (school competitions, and new design) BODYSTORMING ☺
- Data collection continues....

<http://www.youtube.com/watch?v=GPpeoCiYVQ>

Grazie

Thank you

Ευχαριστώ

Danke

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