

Prevalence of food additive in hen meat products

Abstract

The present investigation aimed to assess chemical monosodium glutamate as flavoring agent in processed hen meat products. One hundred random of processed hen meat samples were estimated. The highest concentration mean \pm SE chemical Food additive Monosodium glutamate (mg/g.) as an flavoring agent was found in samples of canned hen (3.950 ± 0.51) than in hen pannaes samples (1.850 ± 0.28), hen minced meat samples were the highest concentration (2.750 ± 1.05), followed by hen shawerma samples (1.730 ± 0.220), and fried hen meat samples (1.470 ± 0.850) mg/g. of chemical Food additive Monosodium glutamate as flavoring agent. So, the current estimated chemical Food additive Monosodium glutamate as flavoring agent contents in the examined processed hen samples were less than the acceptable levels stated by Egyptian Standards, FDA stated that contamination of the examined chicken meat samples in this study revealed that the amount of chemical monosodium glutamate as flavoring agent causing reactions in human being ranged from 0.500 to 3.00 mg. so a typical serving of a foodstuff with added chemical Monosodium glutamate as flavoring agent has less than 0.50 g. of Monosodium glutamate as flavoring agent. Reduction the public health hazards of exposure to these food additives as flavoring agent. The corrected and safe doses of chemical Food additive Monosodium glutamate as flavoring agent in food of human.

Keywords: processed hen meat, high performance liquid chromatography, flavoring agent., hen minced meat

Volume 12 Issue 2 - 2023

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Received: September 25, 2023 | **Published:** October 26, 2023

Introduction

Important changes in the processed hen have occurred recently, contamination of the examined chicken meat samples in this study indicates mostly as a result of increasing world population increase. These changes causes increased popularity of the processed hen as canned hen, other processed hen.^{1,2} Processed Chicken products act as an important source of human protein supplement of the world. processed Chicken products act as a good source of digestible protein, low in cholesterol content, fat content, essential amino acids content, minerals content, vitamins content and minerals content, as well as human being increasing in number, demand of animal proteins, increasing represents a serious challenge in which hen products plays an important role in reducing nutrition gap as a rapid and economic source of nutrients.

The using of chemical Food additive monosodium glutamate as flavoring agent, and other additives in processed hen has become increased. chemical Food additive monosodium glutamate as flavoring agent known as Umami, chemical Food additive monosodium glutamate as flavoring agent is present in a group in a wide range of processed hen as a flavoring agent, protein or pure chemical monosodium salt as flavoring agent.³⁻⁶ Chemical Monosodium glutamate as flavoring agent is also used as a processed hen preservative.^{7-10,1}

Chemical Food additive Monosodium glutamate as flavoring agent is used in animal feed and food processing. It may be found in hundreds of processed hen. At the same time, health concerns regarding the processed hen widespread usage. Legal limits do not inhibit people from tasting salt Monosodium glutamate as flavoring agent. In USA the Federation of American Societies for Experimental Biology (FASEB) reported in 1995 that chemical food additive Monosodium glutamate as flavoring agent access in doses varied from 0.500 to 3.00 mg. causes transient chemical food additive Monosodium glutamate as flavoring agent disease.^{7,11,12} Possible toxic effects causes obesity,

CNS damage, disturbance in fatty tissues physiology, liver cirrhosis, and reproductive problems.¹³⁻¹⁵ Chemical food additive Monosodium glutamate as flavoring agent is a controversial substance in terms of its harmful effects after long-time dosing.^{7,11,6} The present study was planned out to detect chemical food additive Monosodium glutamate as flavoring agent in processed hen marketed in Egypt by using HPLC -UV/DAD.

Material and methods

Sampling: A total number of 100 random samples of processed hen represented as canned hen, hen pannaes, hen shawerma, hen minced meat and fried hen (20 of each). The samples were transferred as soon as possible to the laboratory without undue delay and subjected to detection of chemical food additive Monosodium glutamate as flavoring agent in processed hen samples according to the methods recommended by Demirhanet al., (2015) and Soysevenet al., (2021) by using High Performance Liquid Chromatography -UV/DAD, The data subjected to ANOVA by using SPSS software (version 18) according to the method recommended by IBM (2019).

Results

In Table 1, results showed the chemical monosodium glutamate as flavoring agent limits (mg/Kg.) were different in the processed hen samples, canned hen were the high in concentration limits in processed hen with mean (3.950 ± 0.510) ranged from (3.020): (4.810) followed by (1.850 ± 0.280) ranged from (1.450): (2.400) in hen pannaes. Processed hen, hen minced meat samples mean was (2.750 ± 1.050) ranged from (0.78) to (4.380) followed by (1.730 ± 0.22) ranged from (1.300): (2.000) hen shawerma and (1.470 ± 0.850) ranged from (0.410): (3.170) fried hen samples. the % of non- Reported Monosodium glutamate as flavoring agent on the labels were 35%, 35% , 50% , 50% and 50% canned hen , hen pannaes , hen minced meat , hen shawerma and fried hen, respectively as shown in Table 2.

Table 1 Monosodium glutamate as flavoring agent (mg/g.) of examined processed hen (n=20.0 of each)

Processed hen	Min.	Max.	Mean ± S.E value
Canned hen meat	3.020	4.810	3.950 ± 0.51
hen panna	1.450	2.400	1.850 ± 0.28
hen minced meat	0.780	4.380	2.750 ± 1.05
hen shawerma	1.300	2.000	1.730 ± 0.22
Fried hen meat	0.410	3.170	1.470 ± 0.85

Table 2 Reported and non-Reported Monosodium glutamate as flavoring agent on labels of examined processed hen (n=20.0 of each)

Product type	Reported on labels		Non- Reported on labels	
	No.	%	No.	%
Canned hen meat	7.0	35.0	13.0	65.0
hen panna	7.0	35.0	13.0	65.0
hen minced meat	10.0	50.0	10.0	50.0
hen shawerma	10.0	50.0	10.0	50.0
Fried hen meat	10.0	50.0	10.0	50.0

Discussion

Chicken meat products act as an important source of human protein because they provide good source of digestible protein content, low cholesterol content, fat content, essential amino acids content, minerals content, vitamins content and minerals content. chemical Food additive Monosodium glutamate as flavoring agent is one of the most popularly used as flavoring agent in the processed hen meat, its consumption increased, possible bad effects recorded results came in line with those recorded.^{7,16,17} The FDA stated that some hazard effects associated with greater chemical food additive Monosodium glutamate as flavoring agent. Circulatory hazards, cardiac effects, muscular damage, gastrointestinal hazards, and neurological hazards are more prevalent.^{7,18} chemical Food additive Monosodium glutamate as flavoring agent causes genetic damage, free radicals to cause harm effect to the cells.^{7,19,20}

According to the results obtained in Table 1, there were differences in chemical food additive Monosodium glutamate as flavoring agent values in the examined processed hen meat. Whereas canned hen meat had the highest concentration mean value of chemical food additive Monosodium glutamate as flavoring agent, followed by hen minced meat, hen panna, hen shawerma, and fried hen meat samples, and fried hen meat samples had the lower results. In comparison with previous studies, we found results of canned hen meat were lower than that obtained by^{7,18} (210.80 mg/Kg.). Then panna were higher results than those obtained by^{7,21} (1.4570 mg/Kg.),^{22,23} (1.600 mg/Kg.) and^{24,18} (1.390 mg/Kg.), chemical food additive Monosodium glutamate as flavoring agent in the processed hen minced meat samples was higher than with those recorded by²⁴ (1.959 mg/g.) and (Baciu et al., 2020) (0.1780 mg/Kg.) but lower than that recorded by (Rohdes et al., 2015) (5.40 mg/g.). fried hen meat samples, chemical food additive Monosodium glutamate as flavoring agent levels were lower than those recorded by Hassan et al., 2018 (1.849 mg/Kg.) and (Soysevenet et al., 2021) (21.300 mg/Kg.)

The concentration of chemical food additive Monosodium glutamate as flavoring agent in each processed hen meat product varies from each other, recorded results came in line with those recorded.^{7,25}

Chemical Food additive Monosodium glutamate as flavoring agent must be written on the product label.⁷ The current study as shown in

Table 2, 12.0% of the processed hen meat samples, including 35.0% of canned hen meat and panna, contained chemical food additive Monosodium glutamate as flavoring agent not reported on the product label. These results higher than the limits of E.S (2010).

The No Observed Adverse Effect Limit (NOAEL) limit of 0.032 mg of chemical food additive Monosodium glutamate as flavoring agent /Kg bw/day). the Acceptable Daily Intake (30.0 mg/Kg bw per day), the Acceptable Daily Intake of chemical food additive Monosodium glutamate as flavoring agent ranging from 0 and 0.120 mg/kg.⁹

Chemical food additive Monosodium glutamate as flavoring agent documented toxicity was minimum after short-time dosing (0.050 mg/Kg bw/day)²⁶ at long term ingestion, because of the cumulative effect, there are no limits to the level of chemical Monosodium glutamate that can be purchased. because daily chemical food additive Monosodium glutamate as flavoring agent intake may be difficult due to unknown concentration of the additives prevalent in the processed hen meat.^{27,25,17,28-45}

Conclusion

From this study we can conclude that, the Chicken meat showed more levels of chemical Food additive Monosodium glutamate as flavoring agent were in canned hen meat and the lowest one was in fried hen meat. Food additive Monosodium glutamate as flavoring agent consumed. Processed Chicken meat that harmfully affects the consumers and is write the quantity on hen meat product label.

Acknowledgments

None

Conflict of Interest

Author declares there is no conflict of interest in publishing the article.

Funding

None.

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