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The Knowledge of Balado Chips Producers on The Use of Dyes in Campago Guguk Bulek Village, Bukittinggi

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ABSTRACT

Chemical contamination among others comes from the misuse of food additives such as coloring agents which can cause human health problems. The purpose of this research was to describe the knowledge of balado chips producers on the use of dyes in Campago Guguk Bulek Village of Bukittinggi. Subject in this research was 7 producers of balado chips. Primary data was obtained from dye testing in Baristand Padang and producer's knowledge was obtained from interview using questionnaire. Data was processed manually and presented in tabular form and described in narrative form. The results showed that there were 3 samples of balado chips do not use additional dyes and 5 samples using additional dye. All producers of red balado chips used a dye of Amaranth as an additional dye and Fast Green FCF dyes on green balado chips. Most producers (85.71%) had a high knowledge of dyes. There were producers that use dyestuffs so that the need for BPOM socialization and supervision of the producers to provide knowledge and understanding of the use of dye.

Keywords: Dyes, Producers' knowledge, Balado chips

INTRODUCTION

Eating is a basic need for human life to get energy and do various activities well. The function of food for humans is as the growth of new cells, the replacement of damaged cells, as well as the source of substances supporting and regulating the process in the body⁽¹⁾. So food that is fed should meet the nutritional value, does not contain microorganisms and chemicals that can cause poisoning and the meal presented should also have an interesting shape⁽²⁾.

In addition to staple food is a complementary food that is often consumed by humans one of them is a cracker. Most of the Indonesian family consumes crackers. Crackers are often used as an appetizer for snack or as a snack. Crackers have a variety of flavors and forms based on the origin of the area. As one snack food crackers contain high starch because generally made of tapioca flour mixed with water into dough then added spices and dye. After that the dough is ready in print and dried into crackers that are ready to be fried⁽³⁾.

One type of crackers that are widely circulated in the community are chips balado is often also known as chips or spicy chips, the price is relatively cheap, tasty and attractive colors make this food a lot of devotees ranging from children to adults. Because it is produced by small industries or home industries, the regulation of the dye used is not yet clear. It is possible that the red color is produced through the use of synthetic dyes prohibited from use as food additives⁽⁴⁾.

Determination of the quality of food in general is highly dependent on several factors such as taste, texture and nutritional value, as well as microbiological properties. But before any other factors are considered, the color factor visually appears first and sometimes is decisive. The quality of color, odor and the consistency or structure of a foodstuff may change or decrease as a result of processing and storage. This can be improved by the addition of additives, such as dyes, thickeners, flavor enhancers, stabilizers and others⁽¹⁾.

The use of a safe supplement is an important consideration, although it is not possible to obtain absolute proof that an additively used substance is not toxic to all humans under all conditions, at least in the physical, pharmacological and biochemical properties of the experimental field proposed may be used as a reasonable basis for the assessment of an additive in foodstuffs⁽³⁾.

Various government regulations are set to protect consumers as well as information or guidance for small and industrial entrepreneurs about chemical additives harmful to human health⁽⁵⁾. This is necessary because food and beverages are directly related to the health of the general public. Therefore, in the processing and preservation of food one of them is the use of additional chemicals⁽⁶⁾.

The use of dye substances on the production of chips balado there are behavioral factors that affect the producer, one of the things that affect behavior is knowledge. Knowledge is a very important dominant in the formation of one's actions. Producers' knowledge is a predisposing factor which is a facilitating and underlying factor for the occurrence of certain behaviors. Knowledge of low food coloring, allows producers to use dyestuffs that are prohibited to use as food additives. This is very harmful to health because of the presence of heavy metal residues in dyes used not for food additives such as textile dyes or paper dyes. The emergence of such misuse is partly due to producers' ignorance of dyes for food, in addition to the price of dyes for industries much cheaper than dye for food⁽⁷⁾.

The result of chemical reaction conducted by Femelia (2009) from 10 producers of balado chips in Payakumbuh Barat based on chromatographic dye inspection found that the most widely used dye is Amaranth (50%) using Red 2G (30%), Red 6B (10%) and Ponceau SX (10%). Some dyes found from 4 plants (40%) are permitted dyes ie Red 2G and Red 6B. Whereas Amaranth and Ponceau found in 6 factory samples (60%) are dyestuffs prohibited from use⁽⁴⁾.

This research was done at the production place of balado chips in Campago Guguk Bulek village of Bukittinggi West Sumatera because based on initial observation, the chips are produced in the dye to add color uniformity of the product so that it can add buyer attraction to buy his wares. Balado chips that were produced have the following characteristics, bright red color, leaving the red color in the hands after consuming chips, tasted a little bitter, sore throat appeared after consuming it and did not have the natural odor as chili typical smell as raw material balado chips. This indicates the use of excessive synthetic dyes.

METHODS

The type of this research was descriptive to describe about the type of dye and the knowledge of producers on the use of dye on balado chips. The research was conducted in Campago Guguk Bulek Village of Bukittinggi in February-May 2014. The subjects were producers of balado chips and objects in this study were 250 grams of balado chips from each type of chips balado that was produced in Campago Guguk Bulek Village of Bukittinggi. Population of this research was all balado chips producers (7 people) in Campago Guguk Bulek Village of Bukittinggi. The instrument used was a questionnaire about the knowledge on the use of dye. Examination of balado chips samples conducted at the Research Center and Standardization of Padang Industry. Data was processed manually and presented in tabular form and described in narrative form.

RESULTS

Analysis of Dyestuffs

Based on Table 1, it was known that from 7 places of production of chips balado in Campago Guguk Bulek Village of Bukittinggi, there were 3 samples of balado chips do not use additional dyes and 5 samples using additional dye. All producers of red balado chips used a dye of Amaranth as an additional dye and Fast Green FCF dyes on green balado chips.

Table 1. Dyestuffs Used by Balado Chip Producers Produced in Campago Guguk Bulek Village, Bukittinggi

No.	Producers	Results of the dye used	Information*
1.	Producer A	Amaranth	Not allowed
2.	Producer B	Amaranth	Not allowed
3.	Producer C	Negative Fast Green FCF	No dye allowed
4.	Producer D	Negative	Without dye
5.	Producer E	Negative	Without dye
6.	Producer F	Amaranth	Not allowed
7.	Producer G	Amaranth	Not allowed

The level of knowledge of Producers

Based on Table 2, it can be seen that the level of knowledge of chips producer about food additives was high.

Table 2. Distribution of Producer Level of Balado Chips Producers Produced in Campago Guguk Bulek Village of Bukittinggi 2014

Level of Knowledge	Frequency	Percentage
High	6	85.71
Medium	1	14.29
Low	0	0
Total	7	100.00

DISCUSSION

Analysis of Dyestuffs

The result of qualitative analysis of dye on balado chips produced in Campago Guguk Bulek Village in Bukittinggi was obtained from 8 samples of balado chips from 7 producers of balado chips. There were 5 samples of balado chips using synthetic dyes and 3 samples of balado chips did not use synthetic dyes, on chips red balado obtained additional coloring substance used is Amaranth and on green balado chips obtained additional colorant used is Fast Green FCF.

Based on the Joint Regulation of the Minister of Home Affairs of the Republic of Indonesia and the Head of the Food and Drug Supervisory Agency of the Republic of Indonesia No. 43 of 2013 and No. 2 of 2013 on the Control of hazardous substances abused in food, Amaranth is one of the hazardous substances which are supervised in its use because it includes one type of hazardous material often used in food⁽⁸⁾.

Amaranth is the most widely used dye and is estimated to account for one-third of all commonly used food colorings. Amaranth in large quantities can cause tumors, respiratory allergic reactions and can lead to hyperactivity in children⁽²⁾.

Research on the analysis of dye substance ever done by Famelia with title analysis of Color Substance Analysis on Balado Chips Produced in District of West Payakumbuh Year 2009 get 50% producer of chips balado use Amaranth as dye⁽⁴⁾. Amaranth was one of seven dyes permitted in food by the US Food and Drug Act in 1964. In 1970, two research groups in Russia reported carcinogenic and embryotoxic effects on the use of Amaranth. In America the results were dubious then the US Food and Drug Administration made its own observations in 1971. The result, which presents so many critics, found some evidence of embryotoxicity in rats. Followed by several other observations, protests and field actions, Amaranth finally banned its official use in 1976⁽⁹⁾.

Amaranth is one of the materials that is supervised in its use based on the Joint Regulation of the Minister of Home Affairs of the Republic of Indonesia and the Head of the Food and Drug Supervisory Agency of the Republic of Indonesia Number 43 and Number 2 of 2013 which was started on July 15, 2013⁽¹⁰⁾.

In order for everyone to know and the food industry does not use materials based on the Joint Ministerial Decree of the Republic of Indonesia and the Head of the Food and Drug Supervisory Agency of the Republic of Indonesia Number 43 and Number 2 of 2013 in every production it is necessary socialization of BPOM as an authorized body to supervise the safety, quality and nutrition of foodstuffs circulating in Indonesia one of them with placement in the news of the Republic of Indonesia and other mass media⁽⁸⁾.

In green balado chips produced in Campago Subdistrict Guguk Bulek Bukittinggi found the dye used is Fast Green FCF which is one of the synthetic dyes permitted according to the regulation of the minister of health of the Republic of Indonesia No. 033 of 2012 on Food Supplementary Material⁽¹⁰⁾.

The use of food coloring agents should be restricted because although relatively safe, large amounts of use may still harm the health of consumers, the use of Fast Green FCF also needs to be limited because the excessive use of these dyes can cause allergic reactions and tumor production⁽²⁾.

Use of food additives that are not recommended can lead to regression of the brain. If this happens in children, children become lazy, often dizzy, decreased learning concentration, and other health problems arise because not all chemical compounds added in the food can be digested synergistically with the components of natural compounds that exist in the human body. In the event of resistance, some of these chemicals will be reduced in the form of dirt, urine and sweat. However, it is highly dependent on the balance of body functions and body resistance (immuno system) of a person. The remainder of a non-biodegradable chemical will accumulate as a non-beneficial ingredient that is toxic⁽¹¹⁾.

The level of knowledge of Producers

The producers have a lot to know about the dye, from 7 producers of balado chips most of them (85.71%) have high level of knowledge, because they have followed the guidance of additional food ingredients provided by BPOM.

Knowledge is the result of knowing, and this occurs after the person conducting the evasion of a particular objek. sensing occurs through the five senses of the human, namely the sense of sight, hearing, smell, taste and touch. Much of human knowledge is obtained through the eyes and ears. There are 6 levels of knowledge that is know, comprehension, application, analysis, synthetic and evaluation⁽⁷⁾.

The lack of knowledge of the type of dye used by producers is due to the fact that producers only know what coloring agent is used without understanding the type of dye that is allowed and is well consumed in accordance with health standards.

The low knowledge of producers on the types of synthetic dyes and dyes prohibited for food is caused by the lack of socialization from the Bukittinggi City Health Office and the Food and Drug Supervisory Agency (BPOM). Lack of counseling about the regulation of the use of food coloring as well as supervision of the use of additional dyes permitted according to the Regulation of the Minister of Health, the producers are less

understanding about the use of food coloring, so that of 8 samples of balado chips examined there are 4 samples of balado chips which use dyes that are misused as a food dye that is Amaranth.

More than 70% food snack (home industry) with traditional handling. In the production process, most of the industries still do not meet the health and food safety requirements. In fact, there is almost or no requirement at all. This is what is allegedly the cause of frequent occurrence of poisoning due to consumption of traditional snack foods, both mass and individual. Food poisoning can be caused by the use of food that is prohibited by the government as well as errors at the level of processing. This is due to the following things:

1. Food producers are less or are not aware and fully understand the meaning of food hygiene and security
2. Producers close themselves to contact with outside parties or authorized agencies in food safety and health issues. This is due to the psychological and confidential factors of the company
3. Producers are underfunded with guidance and directive from the competent authority on health and food safety issues
4. The agency or food regulatory body has not been able to supervise any time of the type of food produced without the knowledge of the producer. So far, agencies only check the type of food shown by the producers, and do not rule out the example of food given is a good and a choice⁽¹¹⁾.

Based on research done by YLKI in 1990 on food snack in Jakarta and Semarang area, showed that banana molen and candied kedondong sold in Jakarta area after tested was positive containing Methanil Yellow, and in red lemonade tested was Amaranth. Some traders because of their ignorance have used some dyestuffs that are prohibited from being used for food⁽⁶⁾.

To protect consumers, the government is expected to monitor the use of food additives to ensure food safety, quality and nutrition. Any processed food whether produced domestically or imported into Indonesia to be traded in retail before it is issued must have a registration approval letter. Processing of foodstuffs required to have a registration approval letter is stipulated by the head of BPOM based on the result of security, quality and nutrition assessment, in accordance with the criteria and procedures set by BPOM.

If in the examination results there are allegations of criminal offenses in the field of food, the results of the inspection will be submitted to the authorities to immediately conduct an investigation. The results are announced to the public through mass media. Withdrawal or destruction of foodstuffs is carried out by the entrepreneur or person who produces or imports food into the territory of Indonesia. This action should be carried out in accordance with the guidelines for the withdrawal and destruction of foodstuffs.

CONCLUSION

The results of qualitative analysis of dye on balado chips produced in Campago Guguk Bulek Village of Bukittinggi, were obtained from 8 samples examined 5 samples using additional dye (synthetic dyes). The result of qualitative analysis of dye contained in red balado chips is Amaranth and coloring agent obtained from green balado chips is Fast Green FCF.

The knowledge of producers of bale chips in Campago Guguk Bulek village of Bukittinggi found that almost all (85.71%) of balado chips producers have a high knowledge of dye, but Few producers are very aware of the types of dyestuffs and dyestuffs that are prohibited the use of 14.28%.

REFERENCES

1. Wijaya D. Beware Additives in your diet (Waspada Zat Aditif dalam Makananmu). Yogyakarta: Buku Biru; 2011.
2. Yuliarti N. Watch Out The Dangers Behind Delicious Food (Awat Bahaya di Balik Lezatnya Makanan). Yogyakarta: Andi; 2007.
3. Rohaendi D. Sangrai Crackers (Kerupuk Sangrai). Jakarta: PT Gramedia Pustaka Utama, 2009.
4. Femelia W. Analysis of Color Substance on Balado Chips Produced in West Payakumbuh District (Analisa Penggunaan Zat Warna pada Keripik Balado yang Diproduksi di Kecamatan Payakumbuh Barat). Graduate Thesis. Medan: Universitas Sumatera Utara; 2009.
5. Suprapti L. Shrimp Crackers Sidoarjo (Kerupuk Udang Sidoarjo). Yogyakarta: Kanisius; 2005.
6. Cahyadi W. Analysis and Health Aspects of Materials (Analisis dan Aspek Kesehatan Bahan Tambahan Pangan). Bandung: Bumi Aksara; 2005.
7. Notoatmodjo S. Health Promotion Theory and Applications (Promosi Kesehatan Teori dan Aplikasi). Jakarta: Rineka Cipta; 2010.
8. Kemendagri, BPOM. Monitoring of Dangerous Substances Abused in Food (Pengawasan Bahan Berbahaya yang disalahgunakan dalam Pangan). Jakarta: Kemendagri dan Badan POM; 2013.
9. Mochtadi D. Amaranth, The Horrendous Red (Si Merah yang Menghebohkan) [Internet]. Himpunan Mahasiswa Kimia Tekstil 2010 [cited 2014 June 13].
10. Kemenkes RI. Regulation of the Minister of Health of the Republic of Indonesia regarding Food Additives (Permenkes RI Tentang Bahan Tambahan Pangan). Jakarta: Kemenkes RI; 2012.
11. Saporinto C, Hidayati D. Food Additives (Bahan Tambahan Pangan). Yogyakarta: Kanisius; 2006.