

MSG: A Miscarriage of Food Innovation

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Abstract

Monosodium Glutamate (MSG) a food enhancer founded by a Japanese Professor was commercialised and is widely used in the cooking of many dishes. MSG is also used as a food additive in many food products such as chips, sauce and instant soups. Though it enhances the taste of food, people who suffer from food allergy react to MSG when consumed. Studies indicate MSG is toxic to the human body. The bleaching agent is harmful to the stomach mucosa, and intake in high doses leads to elevation of the liver and renal functions. Prolonged consumption can cause reactions such as migraine, fatigue, vertigo, perspiring, tingling and redness. In severe cases, it can also cause cardiac arrhythmia, neuropathy urticaria, asthma, cutaneous allergic reaction, and abdominal disturbance. Despite the severity of allergy reaction and the ill effects to human health, MSG continues to be used as a food enhancer without any inhibitions, especially in Malaysia. The law governing the usage of MSG merely regulates to the extent that it should be mentioned as an ingredient as with any other ingredients in the label of the product. The burden is on the consumer to 'find out' whether MSG is an ingredient in the food they intend to consume (*caveat emptor*), and the choice is left to the consumers to face the health hazard of consuming food products with MSG. The fact that MSG is labelled does not protect consumers from the dangers of consuming or using MSG oriented food enhancer such as Ajinomoto. Food enhancers such as MSG should be further regulated and should not be overwhelmed and celebrated as a food innovation. In Pakistan, MSG has been banned because it is deemed hazardous to human health. The inadequate regulatory approach to the usage and consumption of MSG would be a miscarriage of justice if not addressed as it affects the wellbeing and health of the consumer society which includes both adults and children. On the basis of the precautionary principle, Malaysia should pursue preventative measures, i.e. interventions on the consumption, trade and usage of MSG as a food safety measure.

Keywords: Food innovation, monosodium glutamate, consumer protection, food enhancer

1. INTRODUCTION

Monosodium glutamate (MSG) is the sodium salt of the non-essential amino acid glutamic, which is very widely used in a variety of food as a flavour enhancer (Bera, 2017). Though acclaimed to be an innovation of the food industry, since the late 1960s MSG is said to cause a range of adverse reactions in people who had eaten foods containing the additive especially consumers who suffer from food allergy. Robert Ho Man Kwok first published a report on the reaction to monosodium glutamate in 1968 (Kwok, 1968). MSG has been linked as the causative agent in the symptom known as "Chinese Restaurant Syndrome" such as "numbness at the back of the neck, gradually radiating to both arms and the back, general weakness and palpitation (Kwok, 1968). MSG also has been reported as a trigger factor for broncho constriction, especially in some asthmatic individual. John W. Olney, M.D., reported that laboratory animals suffered brain lesions and neuroendocrine disorders after being exposed to monosodium glutamate (Olney, 1969). In Nigeria, MSG is used as a bleaching agent by commercial launderers and individuals for the removal of stains from clothes (Okon et al. 2013). Despite the reports that MSG is a health hazard, MSG's flavour enhancing properties has overwhelmed the food industry. MSG is a preferred choice as compared to natural food enhancers such as vegetables and meat because it is cheaper and more convenient to use since it is in the form of granules or cubes as compared to meat for example. The adverse reactions of consuming MSG are left to the consumers' risks. Consumers are given the freedom to take it or leave it (buy or not to buy) as in the freedom of contract in purchasing food. The consumer bears the risks. The law protects consumers by taking a precautionary approach since there are risks that consuming MSG may cause allergy. Therefore, all food products with MSG must be stated in the ingredient column of the label, as

provided in section 23 of the Malaysian Food Regulation 2011. Failing which is an offence in section 15 of the Food Act 1983. This approach reflects acclimation to the caveat emptor doctrine. The consumer has the burden to check or be aware of whether the food product they purchase contains MSG. The perils of the usage or consumption of MSG is at the consumers own risks. However, there are proven studies to indicate the hidden dangers of consuming MSG but since it is stated not to be fatal and the fact that it is an income generator, the hidden dangers of MSG are concealed or said to be anecdotal. Consequently, some countries are still procrastinating on the risks of using MSG as a food enhancer. Pakistan has banned the use of Ajinomoto the trade name for MSG in all food items as it is injurious to health and has a hazardous effect on human beings. In Malaysia and ASEAN countries especially, MSG or also known in its trade name, 'Ajinomoto' is widely used as food enhancer condiment even in baby food despite the hidden perils to human health. Adapting qualitative methodology, analyzing both primary and secondary sources, the authors discourse that Malaysia should address the health hazards of consuming MSG since it is widely used in processed food products and is a popular food additive. The authors conceptualize that Malaysia should take a pro-active measure in regulating preferably banning MSG if it is deemed hazardous to human health regardless of whether it might affect only certain group of people who are hypersensitive to synthetic food additives. Consumer welfarism should be prioritized. The usage of MSG should not be left to the consumers' perils based on caveat emptor and the freedom to contract. Precautionary principle compels preventive measures because of consumers well being for both adults and children.

1.1 MSG: Food Enhancer with Hidden Health Hazard

There is no compromise to food and human taste buds. Human behaviour towards food consumption is either live to eat or eat to live. The craving for something new is a venture and an unexplainable creed which has created a diversity of new demands and pressure on food innovation. Concerns over the shrinking of plants and animals in biodiversity have eviscerated natural food to synthetic microbial level in the form of granules and nano cubes. Though such inventions are cost-effective and convenient for the betterment of consumers, but if such food innovation is also a health hazard, food safety measures should be addressed. MSG is one such food innovation, the concerns of which it has raised should be addressed. A Japanese chemist named Kikunae Ikeda derived MSG from seaweed more than 100 years ago (Lavine, 2007). Currently, however, MSG is made by fermenting starch, sugar beets, sugar cane, or molasses. MSG subsequently was patented and mass-produced, hitting supermarket shelves as Ajinomoto, which is translated as "the essence of taste" (Lavine, 2007). MSG however though stated by Food and Drug Administration of the United States of America (FDA) as safe, is reported to be one of the worst food additives in the market and is widely used in canned soups, crackers, meats, salad dressings, frozen dinners and even in baby food. In other words, MSG is used in most commercial food (Wijayasekara and Wansapala, 2017). The properties of MSG are more than just a seasoning like salt and pepper, it enhances the flavour of foods, making processed meats and frozen dinners taste fresher and smell better, salad dressings tastier, and canned foods less tinny (Bera, 2017). Even though the innovation of MSG's benefits the food industry, this food enhancer is said to slowly and silently cause major damage to the health of people, as shown in **Figure 1** (Niaz 2018). The perils of consuming MSG though highlighted in the 1960s as the "Chinese Restaurant Syndrome" or more appropriately termed as "MSG Symptom Complex", it continues to be sold and consumed because the Food and Drug Administration of the United States of America (FDA) identifies 'MSG Symptom Complex' as only "short-term reactions" and not fatal (Bawaskar et al., 2017). Consequently, the usage of MSG thrives to the benefit of the business industry in Malaysia and many other parts of the world despite the known health hazard brushed aside because the evidence of health hazards are anecdotal. Authors presupposition is, MSG thrives to the benefit of the business industry because the hegemony of the business industry overshadows the wellbeing and welfarism of the consumer society, especially consumers who suffer from allergy. Furthermore, the consumers are given a choice, i.e. freedom to contract in buying and consuming MSG. Consumers who do suffer from food allergies can refrain from consuming MSG-laden food if they are at any health hazard risks.

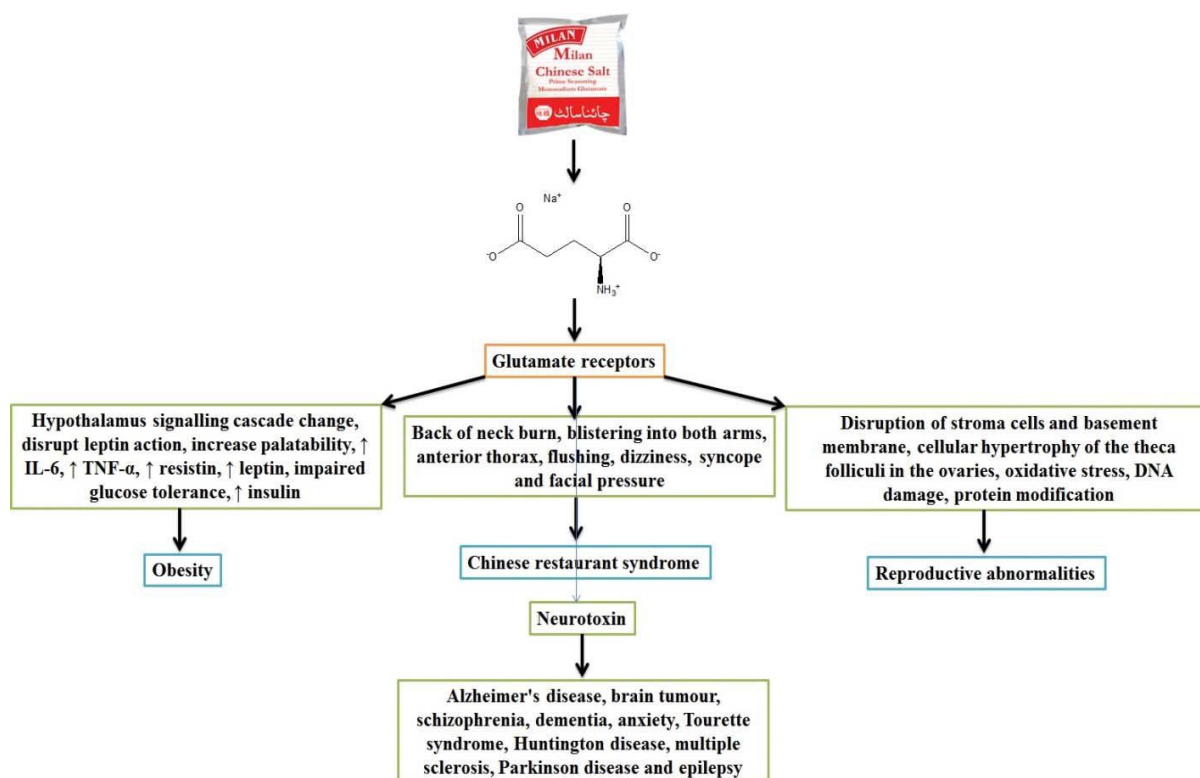


Figure 1: MSG toxicity leads to different disorders(Niaz 2018)

1.2 REGULATORY POLICY TO MSG IN MALAYSIA

The law governing labelling in Malaysia is the Malaysian Food Regulation 1985, the Food Irradiation Regulations 2011 and Food Act 1983.

Regulation 23 of the Malaysian Food Regulation 1985 that regulates the labelling law requirements for 'food enhancer' provides; Flavour enhancer (1) In these Regulations, "flavour enhancer" means any substance that, when added to food, is capable of enhancing or improving the flavour of that food. (2) The substances specified in the Ninth Schedule shall be the permitted flavour enhancers within the meaning and for the purposes of these Regulations. (3) Notwithstanding sub-regulation (2), the addition of flavour enhancer to food is prohibited except as otherwise permitted by these Regulations. (4) Notwithstanding paragraph (g) of sub-regulation (1) of regulation 11, where a permitted flavour enhancer has been added to any food there shall be written in the label on a package containing such food the words "contains (state the chemical name of the flavour enhancer) as permitted flavour enhancer".

In other words, Regulation 23 of the Malaysian Food Regulation 1985 merely provides that it should be mentioned in the label if food enhancers are used or is a condiment in the food product sold. Non-compliance to the labelling regulation amounts to an offence under the section 15 and section 16 of the Food Act 1983 as follows;

"Section 15 of the Food Act 1983 states: Where a standard has been prescribed for any food, any person who prepares, packages, labels or advertises any food which does not comply with that standard, in such a manner that it is likely to be mistaken for food of the prescribed standard, commits an offence and is liable on conviction to imprisonment for a term not exceeding three years or to fine or to both. Section 16 states: Any person who prepares, packages, labels or sells any food in a manner that is false, misleading or deceptive as regards its character, nature, value, substance, quality, composition, merit or safety, strength, purity, weight, origin, age or proportion or in contravention of any regulation made under this Act commits an offence and is liable on conviction to imprisonment for a term not exceeding three years or to fine or to both."

No doubt the labelling of the content alerts the consumer to be aware of what they are consuming. But not all consumers are literate, and some do not bother to read, or some read but do not understand because as said by Mc Leay (1987), "labels to specify every additive using the specific name would make labels read like chemistry texts and may only serve to confuse consumer further." As with the lengthy terms and conditions that accompany contracts, almost every food product sold for human and animal consumption must be accompanied with the

ingredients stated on the labels. Most of the time, consumers do not read the terms or even if they read, they do not understand the meaning of the terms (Sheela, 2014). Moreover, consumers focus on the goods that they purchase and not the terms attached to the sale of the goods (Sheela, 2014). Likewise, consumers buying food items, especially are rarely concerned about the ingredients. Consumers are more concerned about the taste of the food. Furthermore, food eaten in restaurants is not labelled to be MSG-laden. No laws are governing the usage of MSG, or its limitation, especially in its usage as a food enhancer in the food served in restaurants. Nor is there any monitoring mechanism as to the amount of MSG used in the preparation of the dishes in the respective restaurant. Consumers need to be alerted as to what they are consuming so that they can make informed choices as to not to eat food that may be a hazard to their health. For example, in America, an estimated of 150 to 200 Americans, mostly children, die each year from food-induced anaphylactic shock, and thousands more rush to emergency rooms to receive life-saving treatments due to food allergy reactions (Derr, 2006). The number of global populations affected by food allergy had been estimated to be 220-250 million people (Din et al. 2019). In Europe, the number stood at 11-26 million, while in Malaysia, the percentage escalated up to 10-15% amongst the children population (Din et al. 2019). Some 877 severe food allergy sufferers were reported in Norway, and this population has kept increasing (Namok et al. 2011). The United States reported a 10% increase in food allergy population, while in the United Kingdom, 1-2% of adults were affected by food allergy and 5-8% amongst the children population. In Taiwan, about 2,108 people out of 30,018 were estimated to be food allergy sufferers (Din et al. 2019). To date, in Japan, about 45,807 children were affected by food allergy (Din et al. 2019). Therefore, these statistics imply the severity of people suffering from a food allergy, and it is a cause for concern that should be addressed. The current approach which conforms to the precautionary principle, freedom to contract and *caveat emptor* to food labelling in Malaysia is not sufficient.

Drawing inferences from Regulation 23 of the Malaysian Food Regulation 1985 and Section 15 of the Food Act 1983, Malaysia as with other countries conforms to freedom to contract and the '*Caveat emptor*' which is a neo-Latin phrase meaning "let the buyer beware." It is a principle of contract law in many jurisdictions that places the onus on the buyer to be due diligent in making purchases. Furthermore, the underlying basis of freedom of contract combines individual autonomy and corrective justice as the two general principles of contract law, which illuminates the facilitative structure and the basic rules of contract law. The underlying role of contract law is merely to facilitate the formation of a contract. Hence, the buyer of a product, i.e. the consumer has the freedom to buy or not to buy, to consume or not to consume, in other words 'take it or leave it' what is offered as a food product in the market as the consumer knows best what is suited to the consumer's health condition.

Furthermore, in a contract of sale of goods, the Sale of Goods Act 1957 (SOGA) protects by imposing implied terms for the seller to comply such as; goods sold must be of merchantable quality, i.e. goods sold must be fit for its purpose or purposes. The Consumer Protection Act 1999 imposes the same protection as SOGA but also extends in protecting consumers against misleading advertisements. Interpretation of the regulative measures undertaken on the usage and consumption of MSG in Malaysia specifically infers; (i) It is sufficient that the usage of MSG is labelled on the food product sold (from Regulation 23 of the Malaysian Food Regulation 1985 and Section 15 of the Food Act 1983) (ii) The onus is on the consumers' due diligence to consume food that is not a health haphazard, i.e. *caveat emptor* (contract law theory) (iii) Consumers have the freedom of contract to buy or not to buy food product for consumption (contract law theory), therefore consumer protection is generally deemed to be sufficient as long as the ingredients are labelled and the consumer should be responsible and be the master of their health and health hazards.

1.3 THE LAW AND CONSUMER WELFARE

In Malaysia, consumer welfarism is evident in the Consumer Protection Act of 1999. The significance and prominence of having a statutory call for consumer protection became a reality in 1999 with the enactment of the Consumer Protection Act 1999 (Sheela, 2014). The Consumer Protection Act came into force on the 15 November 1999 after ten years of discussion and five years of drafting (Sheela, 2014). The Act comprises of 14 parts and 150 sections dealing with selected areas of the law. The Act gives inalienable rights to consumers such as guarantees of fitness and quality as to the goods. The Act also protects consumers from misleading and deceptive conduct, false representation, and unfair trade practices. All the rights alienated to the consumer in the Consumer Protection Act 1999 cannot be contracted out as provided in section 6 of the Act. It comprises of civil and criminal liability. Gleaning from the Consumer Protection Act 1999, consumers are protected as against the usage of MSG only if the product tainted with MSG does not conform to the labelling law of Malaysia, i.e. Regulation 23 of the Malaysian Food Regulation 1985 and Section 15 and 16 of Food Act 1983 as it would amount to misleading the consumers. MSG, however, has been given the FDA approval as a safe condiment to

be used and safe for consumption despite the "China Restaurant Syndrome (C.R.S.)" a term coined for a serious response to monosodium glutamate (MSG) food additives, the first case of which was reported in 1968. The C.R.S. symptoms are pain and nausea, sweating or flushing, tightness in the chest, tremor, numbness or burning in and around the mouth, facial pain or swelling, and headache and muscle pain. Children may react with fever, confusion, or anxiety. Though the health hazard of consuming MSG is obvious since it is not banned and approved 'safe' for human consumption, implied guarantee as to acceptable quality (section 32 of CPA 1999) and implied guarantee as to fitness for a particular purpose (section 33 of CPA 1999) is self-explanatory. The labelling law as to the usage and consumption of MSG merely functions as a precautionary approach which is why the law is deemed to be in a grey area as far as consumer protection is concerned. For example, there are no limitations as to the usage of MSG in restaurants or even food served in canteens. Schools especially should prohibit the usage of food enhancers in food prepared for school children, or even food served to children placed in childcare centres. Abdel Moneim et al. (2018) states, "Monosodium Glutamate is a silent toxin present in our food, especially our kids' food. It can cause a decline in the cognitive functions and alternations in serum and brain serotonin levels."

Furthermore, generally, food served in schools in Malaysia are not deemed to be healthy due to the lack of available food policies or guidelines to enforce further the need to prepare healthy food for the consumption of primary students (Nik Rosmawati et al., 2017), and it does not conform to the World Health Organisation (WHO) requirements as shown in Table 1 especially Step 8 if MSG is consumed (Adapted from WHO, 2000). Consuming junk food with food additives and enhancers such as MSG places the children's health at stake. On the long run, children will suffer from obesity, reproductive abnormalities, neuron fatalities that impairs the brains functioning. The law such as the Consumer Protection Act 1999, The Food Act 1983 and the Malaysian Food Regulation 1985 in Malaysia does not protect children from consuming food that is unhealthy and tainted with MSG specifically. Children under no circumstances should be expected to conform to the caveat emptor rule or freedom of contract. Children need regulative interventions to protect them from consuming unhealthy food as they cannot understand the perils of unhealthy food and adults also need a regulative mechanism to protect them from consuming food which may be a health hazard.

TABLE 1: Twelve steps to healthy eating for children and adolescents

<ol style="list-style-type: none"> 1. A nutritious diet should be based on a variety of foods originating mainly from plants, rather than animals. 2. Bread, grains, pasta, rice or potatoes should be eaten several times a day. 3. A variety of vegetables and fruits should be eaten, preferably fresh and local, several times a day. 4. Fatty meats and meat products should be replaced with beans, legumes, lentils, fish, poultry or lean meat. 5. Low-fat milk and low-fat, low-salt dairy products (kefir, sour milk, yoghurt and cheese) are preferable. 6. Fat intake should be limited to not more than 30% of daily energy, and most saturated fats should be replaced with unsaturated vegetable oils or soft margarine. 7. Foods that are low in sugar should be preferred, and refined sugar used sparingly, with a limited frequency of sugary drinks and sweets. 8. A low-salt diet is best. Total daily salt intake should be limited to 2 g for 1–3 year old, 3 g for 4–6-year-old and 5 g for 7–18-year-old, including the salt in bread and processed, cured and preserved foods. Iodised salt should be used where iodine deficiency is endemic. 9. Food should be prepared safely and hygienically. Steaming, baking, boiling or microwaving helps to reduce the amount of added fat. 10. Young children should be introduced to food handling and cooking processes and encouraged to join in food preparation safely, whenever possible. Older children and adolescents should also learn about the preparation of food and cooking processes. All age groups should learn the importance of a healthy diet. 11. The benefits of breastfeeding compared to infant formula should be explained to children and
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adolescents.

12. Children and adolescents should learn to enjoy physical activity and reduce time spent passively on TV, video and computer games to maintain normal growth and body weight within their commended limits.

Adapted from: WHO, 2000.

2. THE PRECAUTIONARY PRINCIPLE IN REGULATING MSG

The precautionary principle states that when an activity causes some threat or harm to the public or the environment, general precautionary measures should be taken (Jordan and O'Riordan, 1999; Tosun, 2013). Internationally, one of the most important expressions of the precautionary principle is the Rio Declaration from the United Nations Conference on Environment and Development. Principle 15 of the Rio Declaration reads: "In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation." This principle is applied in the context of human activities on the environment and human health. Labelling law conforms to the precautionary approach. The authors' procrastinations are, however, whether the laws sufficiently conform to consumer welfarism in the usage and consumption of MSG and whether further preventive measures are imminent in Malaysia for the following reasons;

- First published report of a reaction to monosodium glutamate, i.e. 'Chinese Food Syndrome' by Robert Ho Man Kwok in 1968, which started 20 minutes into a meal in certain Chinese restaurants, he suffered numbness, tingling and tightness of the chest (Kwok, 1968).
- John W. Olney, M.D reported that laboratory animals suffered brain lesions and neuroendocrine disorders after being exposed to monosodium glutamate (Olney, 1969).
- ALS, Alzheimer's disease, seizures and strokes are associated with glutamate cascade (Blaylock, 1994).
- Toxic potential of MSG (Schwartz, 1988).
- MSG intake causes a disrupted energy balance by increasing the palatability of food and disturbing the leptin-mediated hypothalamus signalling cascade, potentially leading to obesity (Araujo et al., 2017; He et al., 2011).
- Administration of a high dose of more than 75 mg/kg MSG significantly elevated systolic blood pressure (Obayashi and Nagamura, 2016).
- MSG cause harmful effects such as oxidative stress, DNA damage, protein modification and lysis of stromal cells (Mustafa et al., 2017).
- The experimental study performed on rats confirmed that MSG was a potent chemical for diabetes induction (Pinterova et al., 2001).
- Newborn rats that were intraperitoneally injected with 4 mg/kg of MSG dose for five days resulted in more advanced obesity (Iwase et al., 2000).

Despite some of the known health hazards as stated above, the consumption and usage of MSG are left to the wisdom of the consumers even though results from both animal and human studies have demonstrated that administration of even the lowest dose of MSG has toxic effects. It shall continue to be produced and marketed because the Food and Drug Administration (FDA) of most countries have classified MSG as a food ingredient that is generally recognised as safe even though consumption of MSG remains controversial. The proponents of MSG allege that scientific evidence indicating consuming MSG cause side effects and is a health hazard are merely anecdotal. Nonetheless, India is calling for a total ban of MSG, and Pakistan has banned the usage of MSG. Until MSG is banned in Malaysia, MSG remains a silent and underestimated threat to human health.

Cause for concern apart from adults are children because they are not aware or not bothered about the health hazard of consuming MSG. Children are tempted by junk food. They overlook the ingredients. The labelling laws do not protect children in any way on the possible health threat that MSG poses. MSG is also used in food products for pets and animal feed. Little thought is given on the side effects that pet food with MSG may cause pet animals such as cats and dogs. Hence, the controversy of whether MSG is safe to be consumed is still in a state of a conundrum because of the different views on the consumption and usage of MSG. Author theorise that current regulatory measures are not sufficient in the purview of consumer protection and welfarism in Malaysia. Further preventive regulatory interventions should be undertaken in Malaysia on the usage and consumption of MSG especially when there is evidence that indicates MSG is a health hazard even though the proponents of MSG state it to be anecdotal.

3. REGULATORY APPROACHES IN OTHER COUNTRIES AND PROPOSAL FOR REFORM

Research efforts to evaluate the side-effects and haphazard of MSG is prevalent. Both scientists and consumers alike are concerned about the side effect of MSG such as obesity, asthma, migraine, palpitation etc. Nonetheless, the usage is widespread. Widespread usage in the past indicates that there is no immediate threat. But much firsthand evidence and some studies indicate otherwise. It is very disturbing that since not all suffer from the side effects of MSG or the ‘Chinese Restaurant Syndrome’, the usage of MSG as a condiment is considered safe, which explains why the regulative measures in Malaysia are limited to ‘labelling’ as required by Regulation 23 of the Malaysian Food Regulation 1985 and Section 15 and 16 of Food Act 1983. Whereas, Pakistan has taken a robust move by banning the usage of MSG. The food authority of Punjab has banned the salt after its scientific panel conducted laboratory tests on the commodity and found it hazardous to health. According to the findings of the panel, monosodium glutamate or Aji-No-Moto is extremely hazardous for pregnant women, and it can cause headaches, fatigue, palpitations, nausea and vomiting, sweating, flushing and numbness of the face and hypertension. The scientific panel of Pakistan recommended banning the usage of the salt in all eateries, frozen foods, and all other food products in the country. Whereas in the European Union (EU) countries, the usage of MSG has been banned in baby food. In other types of food, EU classifies MSG as a food additive permitted in certain food subject to quantitative limits as illustrated in Table 2 by Niaz (2018). MSG content in Table 2 is shown by the numbering system, i.e. The European numbering system for registered food-additives. India is considering to ban the usage of MSG. On the other hand, literature also indicates that the side effects of consuming MSG are exaggerated and not of any danger for human consumption (Mallick, 2007).

Table 2: Different sources of MSG in commercial products

Ingredients containing free glutamic acid	Ingredients containing MSG	Ingredients that trigger MSG-toxicity insensitive Individuals
Glutamic acid (E 620) -Glutamate (E620) -Monopotassium glutamate (E 622) -Calcium glutamate (E 623) -Monoammonium glutamate (E 624) -Magnesium glutamate (E 625) -Natrium glutamate -Hydrolysed protein -Calcium caseinate -Sodium caseinate -Yeast extract -Torula yeast -Yeast food -Yeast nutrient -Autolyzed yeast -Gelatin -Textured protein	-Carrageenan (E 407) -Bouillon and broth -Stock -Flavouring products -Natural flavour -Maltodextrin -Oligodextrin -Citric acid, Citrate (E 330) -Ultra-pasteurised products -Barley malt -Malted barley -Brewer’s yeast -Pectin (E 440) -Malt extract -Seasonings	Seasonings -Corn starch -Corn syrup -Modified food starch -Lipolyzed butterfat -Dextrose -Rice syrup -Brown rice syrup -Milk powder -Reduced-fat milk (skim; 1 %; 2 %) -Low-fat products -Vitamin enriched products -Vinegar -Specific amino acid chelates such as citrate, aspartate and glutamate act as chelating agents with minerals

<ul style="list-style-type: none"> -Whey protein and other related products -Soy protein and other products -Fortified protein -Fermented foods -Protease -Vetsin -Ajinomoto -Umami 		<p>supplements</p>
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Scrutinising primary and secondary sources on MSG, the authors deduce that until there is convincing evidence that MSG is fatal to human beings or there are grave numbers of fatalities, it shall continue to be used at the expense of consumers health and wellbeing. Income generator food products supersede the health and wellbeing, i.e. welfarism of consumers. For example, despite the known health haphazard in consuming fizzy drinks laden with sugar and colouring, Milo which is supposed to be an energy and nutritious beverage is also loaded with sugar, fast food which are processed food, oily and enhanced with MSG are deemed too safe for human consumption because it is fit to be eaten even though stated to be unhealthy. The consumers have a choice to be health-conscious and avoid consuming food that is bad for their health, i.e. caveat emptor and they have a choice to exercise the freedom to contract, i.e. to buy or not to buy. The choice is theirs to consume or not to consume that is ‘take it or leave it’ food or food products that are unhealthy or unsafe which includes consumption of MSG. Little or no regard is given to consumer welfarism or consumer behaviourism. Consumer behaviourism is as such that any food innovation is a temptation for consumers to try regardless of any health hazards and consumers assume that food or food products sold in the market are safe to be consumed. To address the concerns of MSG consumption and usage; however, irrespective that only hypersensitive people react to consuming MSG, interventions are imminent. For example interventions such as the following are suggested; bar codes, warning signs to alert consumers that food has MSG compound, chefs and cooks should be educated on the amount of MSG that should be used in the dishes served, and the menu should mention dishes served with MSG, consumers should be educated as to the long term effect of consuming MSG and preferably organic food enhancers should be innovated. Regulative measures should include an emphasis on the amount of MSG used in food products, especially food meant for children. Food products enhanced with MSG should have a distinct marking that alerts consumers, especially consumers who suffer from allergy. Schools should be prohibited from selling junk food rich with MSG and additives. Children should be taught healthy eating habits. The school should also take enforcement measures in preventing street vendors from selling junk food tainted with MSG outside the school compound. Healthy nutrition interventions need to occur early in childhood and adolescence to prevent or reverse the adverse health effects of overweight and poor eating habits. Childhood and adolescence is a critical period for diets of high nutritional quality as the physiological need for nutrients is high relative to energy needs (Stonge, Keller & Heymsfield, 2003). Schools can provide an important opportunity for prevention, because they provide the most effective method of reaching large numbers of people, including youth, school staff, families and community members (Carter, 2002). Healthy food and improved nutrition should be a high priority on every school agenda because of the positive effect on child wellbeing, and subsequent enhanced learning ability and academic performance. Parents should also keep a watchful eye as to the food the children are consuming in school, especially food that is unhealthy and tainted with MSG. Children should not be expected to observe the caveat emptor rule and freedom of contract as they are too young to understand the harmful perils of junk food tainted with MSG.

4. CONCLUDING REMARKS

Food innovation has, without doubt, brought benefits to consumers, especially in the light of degrading biodiversity, scarcity in plants and animals. The concern, however, is when innovation affects the health and the wellbeing of human beings such as MSG. Revenue generated by innovations and inventions of food, however, overshadows the best interest and health of consumers such as the consumption and usage of MSG. The revenue that MSG generates overwhelms the hidden danger of its consumption. Though the side effects are stated to be short term, studies indicate consumption of MSG can cause obesity, Chinese restaurant syndrome, reproductive abnormalities and other health hazards. Therefore, the law as the precursor of justice should regulate the usage of MSG with restrictions or a total ban should be imposed on its usage, as the robust move taken by Pakistan. To turn a blind eye to the usage of MSG would tantamount to a miscarriage of justice if not addressed. Best interest and safety of human health should be at the forefront and should be prioritised especially the health of children

because as the saying goes, 'we are what we eat'. Food sold should be monitored and controlled not only as to the price but also the ingredients in the food, which affects the general wellbeing of the consumers generally. Caveat emptor is no doubt shouldered by the consumers, and the consumers do have the freedom to buy or not to buy, but consumers need to be protected. Consumer welfarism calls for interventions. The measures suggested should be undertaken to address the health hazards of consuming MSG apart from the labelling law measures in Malaysia, which are not sufficient. Imminent measures are needed, especially MSG-laden food. The Government of Malaysia should strictly monitor especially food sold in school canteens and food sold by street vendors that may be unhealthy and unsafe. It is not sufficient that children are taught healthy eating habits, but on the other hand, they are tempted with junk food tainted with MSG and additives sold in the school canteen. Children should not be expected to conform to the caveat emptor rule and the freedom to contract. A robust move such as banning all junk food laden with MSG and any other additives in school canteens and prohibiting street vendors from selling junk food outside the school compound is imminent. Generally, regulatory measures based on precautionary principle should refine the labelling law in Malaysia and undertake further preventive steps on the safety measures especially in dealing with food which is a primary source for humans to lead a healthy life. A balance should be drawn between the convenience and income that food innovations offer and food safety. Otherwise, food innovation would amount to a miscarriage of justice. Consumers wellbeing and safety should not be comprised at any cost.

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