

Research Article

A Review on the Concentration of the Pesticides in Milk, Dairy Products, Vegetables and Fruits

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Abstract: Pesticides from decades are used not only in the agricultural fields for the increase in food production but also for public health protection. More than 1000 different organic and inorganic compounds are used as pesticides. Most widely used pesticides are organochlorine pesticides, which are not only toxic but persist in the environment for decades and are bio accumulated. Uncontrolled use of pesticides, their persistence results in the pesticide residues or related daughter products in the soil, surface water, groundwater, air, and in primary and derived agricultural products. Due to consumption of pesticides contaminated rations and use of the pesticides on the animals to control ectoparasites, application of pesticides on fruits and vegetables to control pests lead to the presence of pesticides in milk, vegetables, and fruits. For the survival of any humankind milk, vegetables, and fruits play a very important role as they are the sources of vitamins, carbohydrates, essential trace metals, antioxidants. The accumulation of the pesticides in food products adversely affects human health ranging from short term to long-term impacts. Headaches, nausea, asthma, sore throat, eye irritation, skin irritation, diarrhoea, pharyngitis, nasal irritation, sinusitis, contact dermatitis, inflammation, endocrine disruption are some short-term effects of pesticides to human, while long term exposure may cause birth defects, infertility, endocrine disruption, depression, diabetes, neurological deficits besides cancer. This review aims to report the concentration of the commonly used pesticides in animal milk, human milk, fruits, vegetables, grains and their impact on human.

Keywords: Pesticides, Human, Environment, Milk, Fruits, Vegetables, Animals

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INTRODUCTION

To feed ever-growing human population which is expected to be 9.7 billion by 2050 (UN, 2015) will require more agricultural production, especially in tropical regions. Since the green revolution of the 60s the use of pesticides in agriculture to protect plants from pests, plant regulators, desiccant, in public health protection to protect humans from vector-borne diseases like malaria, dengue fever has been increased many folds. As per estimation the global annual consumption of the pesticides is approximately 3.5 million tonnes (Steingrimsdóttir *et al.*, 2018) and is increasing by 4% annually. An application of pesticides improves the crop quality and soil health by controlling pests and plant diseases, controls pests like termites, cockroach harmful to human activities and structure. To provide off-season vegetables and fruits to the nation in more temperate weathers the use of the pesticides by developing countries became useful for the economy of the developing countries. About 95% of the applied pesticides affect non-targeted species, air, soil, and water. Since 1970 pesticides and their metabolites have been found in all the compartments of the environment, viz., air, groundwater, surface water, food chain, etc.

As the Milk, a white fluid produced by the mammary glands of the mammals (cow, buffalo, goat, sheep, and human), contains essential nutrient proteins, amino acids, vitamins, lactose, minerals, essential fatty acids, immunoglobulins, antimicrobial in the balanced ratio is the main source of nutrition for young mammals till other types of food is not digested by them and an important component of the diet of elders (Kowalska *et al.*, 2020; Sarsembayeva *et al.*, 2020). The amount and the ratio of these nutrients in the milk vary with the animal species and breeds within the species. In 2018 the global turnover of the milk and dairy industries was estimated to be about 442 billion US dollars and expected to grow by 5.2% annually. As per estimate the worldwide milk consumption in 2017 was 216 million metric tons and is expected to become 234 million metric tons in 2021. As per estimation, the average annual global consumption of the milk in the year 2018 was 100 kg/person.

Majority of widely applied organochlorine pesticides viz, DDT, HCH are stable and persist in the environment for decades, resulting in the pesticide residues or related daughter products found in the soil,

surface water, groundwater, air, and crop yields (Pan *et al.*, 2019; Bai *et al.*, 2018). The residues of pesticides have also been reported in animal milk, human breast milk samples, fruits, vegetables, cereals, grains, animal feeds by the number of food scientists (Blaznik *et al.*, 2016; Del Prado Lu, 2015; Chourasiya *et al.*, 2014; Witzak & Abdel-Gawad, 2014).

The present review throws light on the concentration of the pesticides in milk samples and the vegetables and fruits commonly consumed by humans.

Types of Commonly used Pesticides

Based on their structure commonly used pesticides are classified into following;

Organochlorine pesticides

Organochlorine pesticides are those pesticides which have cyclodiene ring with five or more chlorine atoms and is the first synthetic pesticide group. The organochlorine pesticides are widely used in a agricultural field and for public health purposes to control vector-borne diseases. DDT, HCH, aldrin, dieldrin, endosulfan, heptachlor, dicofol, chlordane, and methoxychlor are some commonly used organochlorines pesticides. Due to the overuse of DDT, it is believed that DDT is present in the body of every living organism on Earth, stored in the fat.

Organophosphorus pesticides

Organophosphorus pesticides are broad spectrum biodegradable pesticides, were promoted as a more ecological alternative of persistent organochlorine pesticides were first synthesized in 1937 from phosphoric acid. Due to their polar nature, most of the organophosphorus pesticides are water-soluble. Organophosphorus pesticides can be classified into three groups: aliphatics (e.g., malathion), aromatics (e.g., parathion), and heterocyclics (e.g., phosalone). Except aromatic and sulphurous derivatives all the other organophosphorus pesticides are easily degraded in the environment. Some commonly used organophosphorus pesticides are Parathion, Malathion, Diazinon, dimethoate, chlorpyrifos, dichlorvos, and fenthion and glyphosphate.

Carbamate and Dithiocarbamate pesticides

Carbamate pesticides are the broad spectrum easily degradable pesticides and more effective against those pests which attain immunity against organochlorine and organophosphorus pesticides. These pesticides have the chemical structure R-O-CO-N-CH (sub)-3 R' (where R is alcohol, oxime or phenol and R' is ether, H or alkyl group). Dimetan was the first synthetic carbamate pesticide. These pesticides are used as the stomach, contact poison and fumigant. Most of the carbamate pesticides are less volatile and fat-soluble. Commonly used carbamate pesticides are carbaryl, oxamyl, carbofuran, aminocarb, aldicarb, and propoxur. Dithiocarbamate pesticides have the chemical structure (R, R') N- (C=S)-SX, where R, R' can be an alkyl,

alkenyl, aryl, or similar other groups, and X a metal ion. Based on the metal cation present the dithiocarbamate pesticides are classified into two groups (i) dimethyl dithiocarbamate and (ii) ethylenebisdithiocarbamate. These pesticides were introduced after World War II. Commonly used dithiocarbamate pesticides are Thiram, disulfiram, ziram, and ferbam.

Pyrethrins and pyrethroids pesticides

Pyrethrins are the natural compounds, having active pesticidal agents' pyrethrins got from the plant *Chrysanthemum cineraria folium* while pyrethroids are synthetic non-persistent pesticides. Most of the pyrethrins and pyrethroids pesticides are water-insoluble and fat-soluble and are less toxic to mammals. Both pyrethrins and pyrethroid pesticides exist in cis and Trans forms and carry a central ester bond and are the esters of 3-phenoxy phenyl alcohol. The pyrethroids are based on cyano radical is classified into two groups, Type I- which contain no cyano radical viz, permethrin, tetramethrin and Type II- containing cyano radical viz., Deltamethrin, fenvalerate. These pesticides affect the muscular system of pest and affect the sodium channel in the target.

Sources of pesticides within the environment

During and after World War II to increase food production and to develop chemical warfare agents the development and production of pesticides have increased. With the green revolution of the 60s the use of pesticides in the agriculture sector to protect plants from pests has been increased many folds. In the agriculture sector pesticides are second to fertilizers in the use. The pesticides can enter the atmosphere because of (i) volatilization from the soil; plant leaves (ii) evaporation from surface water (iii) drifting and losses during application (iv) wind erosion.

The main sources of environmental contamination by the pesticides are

The pesticides are mainly used in the agriculture and in public health protection to protect plants from pests, weeds and other diseases and humans from vector-borne diseases such as malaria, dengue fever. Some pesticides are also used in sport fields, urban green areas, building materials, in some lice removal shampoos, pet shampoos, and in coatings of the bottom of the boats. Environmental contamination by the pesticides also occurs by leaks and spill from the storage sites, spilling during loading into the application equipment, rinsing containers, improper disposal of containers containing pesticides.

Routes of Contamination

Routes of contamination of Milk:

The main routes of contamination of the milk by the pesticides are:

Uptake of the pesticides by the animals

Routes of uptake of the pesticides by the animals are (Ishaq *et al.*, 2018):

- (i) Ingestion: It occurs via gastrointestinal route i.e. by up-taking contaminated green fodder, drinking water, veterinary medicines and other feeds via the mouth.
- (ii) Dermal: Dermal uptake means absorption through the skin
- (iii) Inhalation: Inhalation uptake occurs via inhalation of the polluted air as dust fumes or contaminated vapours.

Other Sources of contamination

Spray of pesticides in animal production places (and/or treatment of animals themselves).

Routes of contamination of fruits, vegetables etc

The major route of accumulation of the pesticides in fruits, vegetables is via absorption by the plants with water and minerals from soils. Plants absorb the pesticides which are washed in soil or water bodies applied on crop plants for the protection from the pests. As the pesticides are not easily decomposing their biomagnifications occurs.

Pesticides in the milk

Milk quality and the composition depends on the cattle, its breed, diet provided, the chemical composition of the soil of the area, the quality of drinking water, and the water used for irrigation of the crops. The milk is contaminated by chlorinated pesticides, organophosphates, carbamates, antihelminthic drugs, antibiotic, potentially toxic metals, etc. The residue of the pesticides and their metabolites in the milk is due to contamination of water, consumption of contaminated rations and use of the pesticides on the animals to control ectoparasites. About 20% of the ingested chlorinated organic compounds are present in the milk (Jayaraj *et al.*, 2016). It is estimated that 90% of the average human intake of organochlorine compounds is via animal-origin food. A review of literature denote that 75-85% of the animal milk samples are contaminated with organochlorine and/or organophosphorus pesticides and more than 60% of the samples are contaminated with two or more than two types of pesticides. The concentration of these pesticides in buffalo, cow milk, and human milk is recorded in the Table 1.

Pesticides in vegetables and fruits

Excessive use of the pesticides, the water solubility of pesticides, improper irrigation, and rainfall causes the leaching of pesticides in the groundwater (Rai & Pandey, 2017). Globally in more than 50% of the groundwater, the concentration of the pesticides is in excess than the permissible limits. Long- term studies (11 years) made by Bansal (2008) revealed that pesticides 2, 4-D, HCH, DDT, parathion are present in the groundwater of Aligarh city. As the groundwater,

sewage water is used for irrigation the pesticides are bioaccumulated in the vegetables and fruits. Pesticides Cypermethrin, Chlorpyrifos, and imidacloprid were detected in the 65-70% of the Pumpkin, okra, eggplant; cucumber spinach and cabbage vegetables collected from Lahore city market (Munawar & Hameed, 2013). About 38% of fruit samples and 16% of vegetables grown in Poland were contaminated with more than one pesticide beyond the permissible limit was the findings of Szyrka *et al.*, (2015). In Africa, 91% of fruit and vegetable sample contains pesticides residues or their metabolites beyond the maximum permissible limit were the conclusion of Mutengwe *et al.*, (2016). Mahmud *et al.*, (2015) found that in most of the samples of vegetables, cocoa beans, and watermelon grown in Nigeria, the concentration of organophosphorus pesticides was beyond the permissible limit. Carbamate pesticides were beyond permissible limit in the 50% samples of vegetables grown in Bangladesh was the findings of Chowdhury *et al.*, (2014). Park (2018) during their studies found that the 70% of conventionally grown fruits and vegetables are contaminated with pesticides and/or their metabolites and 98% of studied samples of peaches, cherries, and apples contain at least one pesticide. They also reported that the few samples of strawberries contain up to 20 different pesticides. The USA Environmental Working Group led by Meyer (2019) during their studies found that in more than 90% of samples of strawberries, apples, cherries, spinach, nectarines, and kale two or more pesticides are present, while in 50% of samples were tested positive for multiple pesticides. Several samples of kale are contaminated with a maximum of 18 pesticides. Fatunsin *et al.*, (2020) during their studies found that organophosphate and carbamate pesticides residues are in food grown in Nigeria but their concentration was below the permissible limit. The concentration of the pesticides in vegetables, fruits, grains are grown globally are summarized in the Table 1.

Impacts of pesticides on Human

Headaches, nausea, asthma, sore throat, eye irritation, skin irritation, diarrhoea, pharyngitis, nasal irritation, sinusitis, contact dermatitis, inflammation, endocrine disruption causing an exacerbation of asthma are some short term effects on human (Bourguet & Guillemaud, 2017; Amr *et al.*, 2015) while birth defects, infertility, endocrine disruption, depression, diabetes, neurological deficits besides cancer are caused when humans are exposed to pesticides for a long period (Mostafalou & Abdollahi, 2013). As per WHO report (2018) globally about three million serious poisonings and 220,000 deaths each year are due to acute exposure of the pesticides, and the major route of exposure is food (90%).

Effects of organochlorine Pesticides

DDT (2, 2-Dichlorodiphenyl 1, 1, 1, trichloro ethane) is the most widely known organochlorine

pesticide. DDT and its metabolites cause hyperplasia; myeloma; hypertrophy; neurological and immunodeficiency disorder; brain, pancreatic, breast, prostate cancer; inhibition of the activity of Acetylcholinesterase enzyme, and, lipid metabolism, endocrine disruption; fibroids; Liver and blood in the human body are and most affected parts (Bourguet & Guillemaud, 2017; Amr *et al.*, 2015; Mostafalou & Abdollahi, 2013; Mutiyar & Mittal, 2013; Khanna & Gupta, 2016; Shrivatava *et al.*, 2015; Koutros *et al.*, 2015; Trabert *et al.*, 2015). Lindane in the human body affects the central nervous system; endocrine system; reproductive system and causes neurotoxicity; breast, prostate, testicular, ovarian, kidney cancer; aplastic anaemia; nausea, headache and loss of consciousness; provoke seizures (Amr *et al.*, 2015; Jaacks & Staimez, 2015; Lal, 2018; NTP, 2011; Croom *et al.*, 2015). Hexachlorocyclohexane (HCH) is associated with Seizures, anaemia, cancer, endocrine disrupter, increase in blood pressure, and total cholesterol, diabetes; induction of hypospadias by affecting liver, kidney, blood, endocrine system (Khanna & Gupta, 2016; Shrivatava *et al.*, 2015; Jaacks & Staimez, 2015; Lal, 2018; Lyche *et al.*, 2016). Aldrin and dieldrin damages kidney and nervous system and in human causes headache; diarrhoea; nausea; convulsions and disruption in the central nervous system (Sharma *et al.*, 2017; Najam & Alam, 2014).

Effects of organophosphorus pesticides

Organophosphorus pesticides also have carcinogenic, mutagenic, and teratogenic effects and their exposure to human cause cardiovascular diseases, seizures, respiratory depression, dementia, Leukaemia, Lymphoma, a neurological disorder in children, increased risk for non-Hodgkin's lymphoma, and

Parkinson's and Alzheimer's diseases. Prolonged exposure to organophosphates affects the male reproductive system by the reduction of sperm activities, by damaging sperm DNA (Mehrpour *et al.*, 2014), decreases gestational duration. Hypospadias is also induced by exposure to organophosphates and organochlorine (Lal, 2018; Michalakis *et al.*, 2014) pesticides. Organophosphate pesticides affect the function of cholinesterase enzymes, decreases insulin secretion, disrupts cellular metabolism of carbohydrates, and fats. Organophosphorus pesticides also influence mitochondrial function, causes cellular oxidative stress and disruption to the normal nervous and endocrine functioning.

Effects of Carbamate Pesticides

Carbamate pesticides in human disrupt mitochondrial function, endocrine activity, cellular metabolic mechanisms, causes neurobehavioral effects, reproductive disorders by cytotoxic and genotoxic effects in ovarian cells, induces apoptosis and necrosis in human immune cells, and in T lymphocytes, enhances the chances of the development of non-Hodgkin's lymphoma, and risk of dementia (Mnif *et al.*, 2011; Soloneski *et al.*, 2015; Li *et al.*, 2015).

Other Classes of Chemical Pesticides

Pyrethroids the safer pesticides also disrupt the endocrine activity, damages DNA in human sperm, develop neurotoxicity, and affects reproductive behaviour (Pandey & Mohanty, 2014; Syed *et al.*, 2015). Triazines in human enhance breast cancer incidence and are associated with oxidative stress, cytotoxicity, and dopaminergic effects. These pesticides also delay sexual maturation in humans (Li *et al.*, 2015; Ma *et al.*, 2015; Jin *et al.*, 2014).

Table 1: The concentration of pesticides in Milk, Vegetables, Fruits, Grains, and Green fodder

S	Pesticid	Buffalo	Cow	Sheep/	Pasteurized	Human	Fruits	Vegetables	Grains	Green
N	e	milk	milk	Goat	Milk	milk				fodder
				milk						
1	Alachlor	0.000-0.001 mg/kg (Shaker & Elsharkawy, 2015)						Chilli pepper 0.299 mg/kg (Bhatt <i>et al.</i> , 2019); Tomato- 0.072 mg/kg (Bhatt <i>et al.</i> , 2019)		
	Anilifos	88 ug/kg (Dahshan <i>et al.</i> , 2016)								
2	BHC/HCH	0.022-0.049 mg/kg (Akhtar & Ahad, 2017); 4.85ug/g	0.009-0.262 mg/kg fat (Rusu <i>et al.</i> , 2015); 8.		0.45-2.34 ug/kg fat (Avancini <i>et al.</i> , 2013); 31.89 ug/kg fat (Bayat <i>et al.</i> , 2011);	90ug/kg dw (Elsero <i>et al.</i> , 2013); 0.2-389	Watermelon -0.091-0.172 mg/kg (Koranteng <i>et al.</i> , 2017); 0-19.03ug/kg	0.0-11.3ug/kg (Kolani <i>et al.</i> , 2016); Cabba ge-0.0-93.8 ug/kg	Maize- 2.19 ug/kg (Oyeyiola <i>et al.</i> , 2017); Wheat	

	(Witczak <i>et al.</i> , 2016); 1.32 ug/L (Bulut <i>et al.</i> , 2011); 0.1 9-10.18 ug/kg (Ishaq & Nawaz, 2018); 0.0 2-61 mg/kg fat (Kiranma yi <i>et al.</i> , 2018); 0.0-67 ug/kg (Gill <i>et al.</i> , 2020); 0.094 mg/kg fat (Aytenfsu <i>et al.</i> , 2016); 113 .3ug/kg dw (Raslan <i>et al.</i> , 2018); 3.57ug/kg (Abbassy, 2017)	7 ug/kg dw (Raslan <i>et al.</i> , 2018)	0.0069-0.170 mg/kg fat (Witczak <i>et al.</i> , 2018); 0.015 mg/kg fat (Aytenfsu <i>et al.</i> , 2016)	123 ug/kg dw (Bergkv ist <i>et al.</i> , 2012; Haque <i>et al.</i> , 2017); 4 6 ug/ kg dw (Ntow, 2001); 92 ug/kg dw (Elbashi r <i>et al.</i> , 2015); 5.78 ug/kg (Abbassy, 2017); 0. 110-0.297 ug/kg lipid (Chen <i>et al.</i> , 2018); 0.0-4.53 ug/kg lipid (Kao <i>et al.</i> , 2019); 0.59-4.55ug/L (Du <i>et al.</i> , 2016); 0.06-1.83 mg/kg fat (Al-Antary <i>et al.</i> , 2015)	(Forkuoh <i>et al.</i> , 2018)	(Kolani <i>et al.</i> , 2016); 3.1-44.7 ug/kg (Bolor <i>et al.</i> , 2018); 11.8ug/kg (Bedi <i>et al.</i> , 2015); lettuce-0.15-2.63 (Kolani <i>et al.</i> , 2016); 7.16-22.05 ug/kg (Bolor <i>et al.</i> , 2018); 6.6 g (Farina <i>et al.</i> , 2016); 0.15-2.63 ug/kg (Bhatt <i>et al.</i> , 2019) Onion-0.78-48.35 ug/kg (Bolor <i>et al.</i> , 2018); 0.046-0.435 mg/kg (Koranteng <i>et al.</i> , 2017); Chilli pepper-0.010-0.109 mg/kg (Koranteng <i>et al.</i> , 2017); Cauliflower 23.8ug/kg (Farina <i>et al.</i> , 2016); Spinach 13.86 ug/kg (Farina <i>et al.</i> , 2016); Broccoli-21.2 ug/kg (Farina <i>et al.</i> , 2016); Mustard 11.3 ug/kg (Farina <i>et al.</i> , 2016); Green pepper 0.18-2.45 ug/kg (Abouy-Arab <i>et al.</i> , 2014)	4.42ug/ kg (Oyeyiola <i>et al.</i> , 2017); Sorghum - 3.83ug/ kg (Oyeyiola <i>et al.</i> , 2017); Millet- 2.0ug/k g (Oyeyiola <i>et al.</i> , 2017); Beans 24.04 ug/kg (Oyeyiola <i>et al.</i> , 2017); Cowpea -1.8 ug/ kg (Oyeyiola <i>et al.</i> , 2017);
3	Bifenthrin	0.02-0.52 mg/L (Shahzadi <i>et al.</i> ,	0.13-0.73 mg/L (Shahza	0.09-0.74 mg/L (Shahza	Gauva- 5.13mg/kg (Akhtar <i>et al.</i> , 2018);	Eggplant- 3.53 mg/ kg (Akhtar <i>et al.</i> , 2018);	

	2013)	di <i>et al.</i> , 2013]	di <i>et al.</i> , 2013)		Watermelon - 0.06 mg/kg (Qamar <i>et al.</i> , 2017)	Round Gourd-3.87 mg/kg (Akhtar <i>et al.</i> , 2018); Salad-0.0- 0.320 mg/kg (Akomea- Frempong <i>et al.</i> , 2017) Tomato- 0.30-0.61 mg/kg (Amrollahi <i>et al.</i> , 2018)			
4	Carbaryl								
5	Carbofuran	0.09-0.61 mg/L (Shahzadi <i>et al.</i> , 2013)	0.10- 0.84 mg/L (Shahzadi <i>et al.</i> , 2013)	0.02- 0.74 mg/L (Shahzadi <i>et al.</i> , 2013)		Watermelon - 0.07 mg/kg (Amrollahi <i>et al.</i> , 2018)	Okra 0.021 mg/kg (Bhatt <i>et al.</i> , 2019); Brinjal 1.789 mg/kg (Bhatt <i>et al.</i> , 2019)		
6	Chlordane			1.49-6.57 ug/kg fat (Avancini <i>et al.</i> , 2013)	0.075- 1.90ug/ kg lipid (Elsero <i>et al.</i> , 2013); 0.0- 2.63ug/ kg lipid (Haque <i>et al.</i> , 2017)	Watermelon - 0.03-0.019 mg/kg(Qamar <i>et al.</i> , 2017)	Chilli pepper- 0.001-0.006 mg/kg (Koranteng <i>et al.</i> , 2017); Onion- 0.005-0.019 mg/kg (Koranteng <i>et al.</i> , 2017); Tomato- 0.001- 0.367ug/kg (Kolani <i>et al.</i> , 2016); Cabbage- 0.001- 1.586ug/kg (Kolani <i>et al.</i> , 2016); Lettuce- 0.001- 0.535ug/kg (Kolani <i>et al.</i> , 2016)		
7	Chlorothalonil	0.0652 mg/kg (Jayasinghe <i>et al.</i> , 2019)		0.05 mg/kg (Jayasinghe <i>et al.</i> , 2019)			Leafy vegetables- 0.11-1.42 mg/kg (Elgueta <i>et al.</i> , 2017)]	Maize- 0.18ug/ kg (Oyeyiola <i>et al.</i> , 2017); Wheat 0.16 ug/kg (Oyeyiola <i>et al.</i> , 2017);S	0.05 mg/kg (Jayasinghe <i>et al.</i> , 2019)

									orgum- 0.15ug/ kg(Oye yiola <i>et</i> <i>al.</i> , 2017; Millet- 0.18ug/ kg (Oyeyio la <i>et al.</i> , 2017); Beans- 0.16ug/ kg (Oyeyio la <i>et al.</i> , 2017); Cowpea -0.136 ug/ kg (Oyeyio la <i>et al.</i> , 2017)	
8	Chlorpyrifos	0.00-3.51ug/kg (Shaker & Elsharkawy, 2015); 0.0-45.4 ug/kg (Bedi <i>et al.</i> , 2015); 0.0264 mg/kg (Jayasinghe <i>et al.</i> , 2019); 1.3-85 ug/kg (Gill <i>et al.</i> , 2020); 0.04-0.80 mg/L (Shahzadi <i>et al.</i> , 2013); 3.61 ug/kg (Amroollahi <i>et al.</i> , 2018)	0.009-0.41 mg/L (Shahzadi <i>et al.</i> , 2013)	0.04-0.76 mg/L (Shahzadi <i>et al.</i> , 2013)	0.012 mg/kg (Jayasinghe <i>et al.</i> , 2019)	0-12.32 ug/L (Smadi <i>et al.</i> , 2019); 4.4 ug/kg (Abbassy, 2017)	9.3 (w/w) (Witczak <i>et al.</i> , 2018); Guava-0.25 mg/kg (Qamar <i>et al.</i> , 2017); Watermelon - 0.06mg/kg (Qamar <i>et al.</i> , 2017); Peach -0.92 mg/kg (Qamar <i>et al.</i> , 2017)	31ug/kg (w/w) (Witczak <i>et al.</i> , 2018); Tomato-0.83-603.6 mg/kg (Kariathi <i>et al.</i> , 2016); 0.018-0.025 mg/kg (Bempah <i>et al.</i> , 2012b); 0.012-1.9 mg/kg (Amrollahi <i>et al.</i> , 2018); 0.03 mg/kg (Hadian <i>et al.</i> , 2019); Salad-0.0-0.090 mg/kg (Farina <i>et al.</i> , 2016); Sweet peppers-0.00-0.009 mg/kg (Abdelbagi <i>et al.</i> , 2020); Lettuce-0.001-0.021 mg/kg (Bempah <i>et al.</i> , 2012b);	0.0-49.5 ug/kg (Bedi <i>et al.</i> , 2015)	

				5.3 ug/kg (Farina <i>et al.</i> , 2016); Cabbage- 0.003-0.009 mg/kg (Bhatt <i>et al.</i> , 2019);4.6 ug/ kg (Farina <i>et al.</i> , 2016); 0.121 mg/kg (Sah <i>et al.</i> , 2018); Carrot- 0.038-0.044 mg/kg (Bhatt <i>et al.</i> , 2019); Onion- 0.041-0.062 mg/kg (Bhatt <i>et al.</i> ,2019); Cucumber- 0.14-0.8 mg/ kg(Amrollah i <i>et al.</i> , 2018); 0.03 mg/kg (Hadian <i>et al.</i> , 2019); Leafy vegetables- 0.01-6.86 mg/kg (Elgueta <i>et al.</i> , 2017); Cauliflower 4.6 ug/kg (Farina <i>et al.</i> , 2016);0.057 mg/kg (Sah <i>et al.</i> , 2018); Spinach 5.3ug/kg [(Farina <i>et al.</i> , 2016);Brocc oli- 5.3ug/kg (Farina <i>et al.</i> , 2016); Mustard 3.3 ug/kg(Farina <i>et al.</i> , 2016) Tomato- 0.0- 0.08 mg/kg (Jallow <i>et al.</i> , 2017); Grapes-0.0- 0.061mg/kg (Ramadan <i>et</i>
9	Chlorpyrifos-methyl	2.34 ug/kg (Abbassy, 2017)	2.66 ug/kg (Abbassy, 2017)	Apple-0.0- 0.14 mg/kg (Jallow <i>et al.</i> , 2017); Grapes-0.0- 0.98 mg/kg

			(Jallow <i>et al.</i> , 2020); <i>al.</i> , 2017); Carrot-0.0- Strawberry- 0.03 mg/kg 0.0-0.20 (Jallow <i>et</i> mg/kg <i>al.</i> , 2017); (Jallow <i>et</i> Cucumber- <i>al.</i> , 2017); 0.0-0.98 Papaya- mg/kg 0.004-0.010 (Jallow <i>et</i> mg/kg <i>al.</i> , (Bempah <i>et</i> 2017);Chilli <i>al.</i> , 2012b); pepper- Mango- 0.007-0.051 0.003-0.007 mg/kg mg/kg (Ramadan <i>et</i> (Bempah <i>et</i> <i>al.</i> , 2020); <i>al.</i> , Cabbage- 2012b);Peer 0.005 -0.008 -0.012-0.025 mg/kg mg/kg (Ramadan <i>et</i> (Bempah <i>et</i> <i>al.</i> , <i>al.</i> , 2012b) 2020);Onion ;Pineapple- -0.004- 0.041-0.062 0.008mg/kg mg /kg (Ramadan <i>et</i> (Bempah <i>et</i> <i>al.</i> , 2020); <i>al.</i> ,2012b); Eggplant- Watermelon 0.017-0.026 -0.002- mg/kg 0.005mg/ kg (Ramadan <i>et</i> (Bempah <i>et</i> <i>al.</i> , 2020); <i>al.</i> , 2012b); Potato- Banana- 0.004-0.008 0.004-0.012 mg/kg mg/kg (Ramadan <i>et</i> (Bempah <i>et</i> <i>al.</i> , 2020) <i>al.</i> , 2012b)		
1 0	Cyperm ethrin	0.0-45.4 ug/kg (Bedi <i>et</i> <i>al.</i> , 2015); 0.0- 340ug/kg (Gill <i>et</i> <i>al.</i> , 2020); 3.94 ug/kg (Abbassy, 2017)	4.4 ug/kg (Abbass y, 2017)	Tomato- 0.0- 0.24 mg/kg (Jallow <i>et</i> <i>al.</i> , 2017); Watermelon 0.030-0.040 -0.0-0.09 mg/kg mg/kg (Bempah <i>et</i> <i>al.</i> , 2012b); Eggplant- 0.0-0.13 0.07 mg/kg (Jallow <i>et</i> <i>al.</i> , 2017);Cucu mber-0.0- 0.98 mg/kg (Jallow <i>et</i> <i>al.</i> , 2017); Mango- 0.006-0.13 0.004-0.012 mg/kg mg/kg (Bempah <i>et</i> <i>al.</i> , 2012a); <i>al.</i> , 2012b); 0.017mg/kg	0.0-64.4 ug/kg [39]

							0.50mg/kg (Ramadan <i>et al.</i> , 2020) (Qamar <i>et al.</i> , 2017); Salad-0.0-0.002 mg/kg(Ako mea- (Bempah <i>et al.</i> , 2012b); Frempong <i>et al.</i> , 2017); Banana- Cabbage- 0.007-0.012 mg/kg (Bempah <i>et al.</i> , 2012a); 2012b);Oran ge-0.14 mg/kg (Sah <i>et al.</i> , 2018); (Qamar <i>et al.</i> , 2017) 0.056 mg/kg (Bhatt <i>et al.</i> , 2019);Carrot -0.010-0.018 mg/kg (Bempah <i>et al.</i> , 2012a); Leafy vegetables - 0.0-1.61 mg/kg(Elgueda <i>et al.</i> , 2017); Okra- 0.112-0.347 mg/kg(Sah <i>et al.</i> , 2018); 0.196-0.736 mg/kg (Bhatt <i>et al.</i> , 2019); Brinjal- 0.407 mg/kg (Sah <i>et al.</i> , 2018)]; Cauliflower- 0.378 mg/kg (Sah <i>et al.</i> , 2018); Chilli pepper-0.111 mg/kg (Ramadan <i>et al.</i> , 2020)		
1	DDT/	0.089	269-477	874	0.58-16.2	6420-	Papaya-	Tomato: 0.0-	Maize-
1	DDE	mg/kg (Akhtar & Ahad, 2017); 138 ug/kg (Dahshan <i>et al.</i> , 2016); 4.714 ug/kg (Ayoub <i>et al.</i> , 2012);	ug/kg (Gebremichael <i>et al.</i> , 2013); 54.8 ug/kg (Raslan <i>et al.</i> , 2018); 1230	ug/kg (Deti <i>et al.</i> , 2014)	ug/kg fat (Avancini <i>et al.</i> , 2013); 21.65 ug/kg fat (Bayat <i>et al.</i> , 2011); 0.040 mg/kg fat (Kampire <i>et al.</i> , 2011)	fat 17170 ug/kg (Gebremichael <i>et al.</i> , 2013); 1100 (Ennaceur & Driss, 2013);	0.008-0.014 mg/kg (Bempah <i>et al.</i> , 2012b);Man go-0.018-0.021 mg/kg(Bempah <i>et al.</i> ,2012b): Watermelon -0.010-	0.78 ug/kg (Kolani <i>et al.</i> , 2016); 571 ug/kg (Bempah <i>et al.</i> , 2012a);0.015 -0.029mg/kg (Bempah <i>et al.</i> , 2012b); 106ug/kg (Farina <i>et</i>	1.34 ug/kg (Oyeyiola <i>et al.</i> , 2017); Wheat 1.92 ug/kg [64]; Sorghum 223.3ug /kg

4.85 ug/kg (Luzardo <i>et al.</i> , 2012); 7.86 ug/g (Witczak <i>et al.</i> , 2016);0.2 6-20.21 ug/kg (Ishaq & Nawaz, 2018) ; 0.050 mg/kg fat (Kampire <i>et al.</i> , 2011); 0.045- 0.089mg/k g (Kiranma yi <i>et al.</i> , 2018); 0.0- 22.8 ug/kg (Bedi <i>et</i> <i>al.</i> , 2015); 0.53-170 ug/kg (Gill <i>et</i> <i>al.</i> , 2020); 0.159 mg/kg fat (Aytenfsu <i>et al.</i> , 2016); 112.7.8 ug/kg d.w.(Rasla n <i>et al.</i> , 2018); 2.74 ug/kg (Abbassy, 2017)	ug/kg dw (Deti <i>et</i> <i>al.</i> , 2014)	490 ug/kg dw (Elsero 0.001-0.001 ug/kg ogy <i>et</i> <i>al.</i> , 2013); 12-9590 ug/kg dw (Bergkv ist <i>et</i> <i>al.</i> , 2012; Haque <i>et al.</i> , 2017); 78 ug/kg dw (Ntow, 2001); 1164ug/ kgdw (Hassin e <i>et al.</i> , 2012); 128-169 ug/kg dw (Hassin e <i>et al.</i> , 2014); 6.5-84 ug/kg dw (Elbashi r <i>et al.</i> , 2015); 124 ug/kg dw (Luzard o <i>et al.</i> , 2014);3. 98 ug/ kg(Abb assy, 2017);0. 72-51.4 ug/kglip id (Chen <i>et al.</i> , 2018); 0.026- 0.240 mg/kg fat (Sharm	0.018mg/kg (Bempah <i>et</i> <i>al.</i> , 2012b); 0.001-0.001 mg/kg (Koranteng <i>et al.</i> , 2017); 123.5 ug/kg (Oyeyiola <i>et</i> <i>al.</i> , 2017); 0.34- Banana- 0.005-0.062 mg/kg (Bempah <i>et</i> <i>al.</i> , 2012b);0- 48.22 ug/kg (Forkuph <i>et</i> <i>al.</i> , 2018)	<i>al.</i> , 2016); Cabbage- 0.0-1.52 ug/kg (Kolani <i>et</i> <i>al.</i> , 2016); 402 ug/kg (Bempah <i>et</i> <i>al.</i> , 2012a); 0.011-0.019 mg/kg (Bempah <i>et</i> <i>al.</i> , 2012b); 21.9ug/kg(F arina <i>et al.</i> , 2016);86.5 ug/kg (Oyeyiola <i>et</i> <i>al.</i> , 2017); 21.2 ug/kg (Olatunji, 2019); Lettuce-0.0- 1.23 ug/kg (Kolani <i>et</i> <i>al.</i> , 2016); 186 ug/kg (Bempah <i>et</i> <i>al.</i> , 2012a); 4.51- 11.5 ug/kg (Bolor <i>et al.</i> , 2018); 0.043-0.087 mg/kg (Bempah <i>et</i> <i>al.</i> , 2012b); 4.5.8ug/kg(F arina <i>et al.</i> , 2016); 0.001-1.236 ug/kg (Bhatt <i>et al.</i> , 2019); 119.55 ug/kg(Aytenfsu <i>et</i> <i>al.</i> , 2016); 28.2 ug/kg(Olatu nji, 2019); Carrot- 156 ug/kgt (Bempah <i>et</i> <i>al.</i> , 2012a);0.004 -0.008 mg/	(Oyeyio la <i>et al.</i> , 2017); Millet- 1.44 ug/kg (Oyeyio la <i>et al.</i> , 2017); Beans 106.5 ug/kg (Oyeyio la <i>et al.</i> , 2017) Cowpea -110.5 ug/ kg (Oyeyio la <i>et al.</i> , 2017)
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a <i>et al.</i> , 2020);0. 0-51.03 ug/kg lipid (Kao <i>et al.</i> , 2019); 0.21- 7.76 ug/L (Du <i>et al.</i> , 2016); 0.12- 2.38 mg/kg fat (Al Antary <i>et al.</i> , 2015);	kg(Bempah <i>et al.</i> , 2012b); 115.5 ug/kg (Oyeyiola <i>et al.</i> , 2017); 66.1 ug/ kg (Olatunji, 2019) ; Onion-4.42 ug/kg(Bolor <i>et al.</i> , 2018); 0.046-0.071 mg/kg (Bempah <i>et al.</i> , 2012b); 0.003- 0.0131 mg/kg (Koranteng <i>et al.</i> , 2017);Cucu mber-0.005- 0.013 mg/kg (Bempah <i>et al.</i> , 2012b) ; 42 ug/kg (Oyeyiola <i>et al.</i> , 2017); 42.2 ug/kg (Olatunji, 2019); Chilli pepper- 0.004- 0.0034 mg/kg (Koranteng <i>et al.</i> , 2017); 123.5 ug/kg (Oyeyiola <i>et al.</i> , 2017); Cauliflower 15.2ug/kg (Farina <i>et al.</i> , 2016); 41.2 ug/kg(Abou- Arab <i>et al.</i> , 2014)]; Spinach 4.6 ug/kg (Farina <i>et al.</i> , 2016);1.2ug/ kg (Olatunji,20 19); Broccoli- 9.43 ug/kg
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					(Farina <i>et al.</i> , 2016); 46.46ug/kg (Olatunji, 2019); Mustard 0.6 ug/kg (Farina <i>et al.</i> , 2016); Green peper 12.1 ug/kg (Oyeyiola <i>et al.</i> , 2017)
1	Deltame	0.06-0.75	0.0579-	0.07-	Apple-0.2-
2	thrin	mg/L	0.80	0.60	0.32
		(Shahzadi	mg/L	mg/L	mg/kg(Jallo
		<i>et al.</i> ,	(Shahza	(Shahza	w <i>et</i>
		2013)	di <i>et al.</i> ,	di <i>et al.</i> ,	<i>al.</i> ,2017);
			2013)	2013)	<i>al.</i> , 2017);
					Frempong <i>et</i>
					<i>al.</i> , 2017);
					Grapes -
					Lettuce-
					0.007-0.023
					mg/kg
					mg/kg(Jallo
					w <i>et al.</i> ,
					2017);
					Bempah <i>et</i>
					<i>al.</i> , 2012b);
					Strawberry -
					Cabbage-
					0.009-0.020
					mg/kg
					(Bempah <i>et</i>
					<i>al.</i> , 2012b);
					atermelon-
					Carrot-
					0.015-0.063
					mg/kg
					(Bempah <i>et</i>
					<i>al.</i> , 2012b)];
					2017);Peer-
					Onion-
					0.012-0.045
					mg/ kg
					(Bempah <i>et</i>
					<i>al.</i> , 2012b);
					Radish 46.36
					ug/kg
					(Olatunji,
					2019)
					0.026-
					0.062mg/ kg
					(Bempah <i>et</i>
					<i>al.</i> , 2012b);
					Banana-
					0.008-0.040
					mg/kg
					Bempah <i>et</i>
					<i>al.</i> , 2012b)
1	Diazino	0.0378		0.0155	Apple-0.0-
3	n	mg/kg		mg/kg	0.08mg/kg
		(Jayasingh		(Jayasinghe	(Jallow <i>et</i>
		<i>e et al.</i> ,		<i>et al.</i> , 2019)	<i>al.</i> , 2017);
		2019)			Frempong <i>et</i>
					<i>al.</i> , 2017);
					Sweet
					peppers-
					0.00-0.066
					mg/kg
					(Abdelbagi
					<i>et al.</i> , 2020);
					0.001-
					<i>et al.</i> , 2020);

0.009mg/ kg Tomato-
 (Bempah *et* 0.003-0.013
al., 2012b); mg/kg(Bemp
ah et al.,
 2012b);0.05-
 0.109 mg/kg
 (Amrollahi
et al., 2018);
 Lettuce-
 0.002-0.006
 mg/ kg
 (Bempah *et*
al., 2012b);
 3.8 ug/kg
 (Farina *et*
al., 2016);
 Cabbage-
 0.010-0.019
 mg/kg
 (Bempah *et*
al.,
 2012b);20ug
 /kg (Farina
et al., 2016);
 0.009 mg/kg
 (Ramadan *et*
al.,
 2020);Carrot
 -0.003-0.011
 mg/kg (Bhatt
et al., 2019);
 Cucumber-
 0.003-0.011
 mg/kg
 [(Bempah *et*
al., 2012b);
 0.032-0.51
 mg/ kg
 (Amrollahi
et al.,
 2018);Onion
 - 0.004-
 0.010
 mg/kg(Bemp
ah et al.,
 2012b);Cauli
 flower-13.3
 ug/kg
 (Farina *et*
al.,
 2016);Spina
 ch 20ug/kg
 (Farina *et*
al., 2016);
 Mustard 1.1
 ug/kg(Farina
et al.,
 2016);Chilli
 pepper-
 0.013-0.026

1	Dichlor							mg/kg (Ramadan <i>et al.</i> , (2020)			
4	vos							Cabbage- 0.26 ug/kg (Qamar <i>et al.</i> , 2017)			
1	Dieldrin	0.006-	11.6	0.005	0.98-14.73	123	Papaya-	Tomato: 0.0-	Maize-	0.00092-	
5	/ Aldrin	0.018	ug/kg	mg/kg	ug/kg fat	ug/kg	0.002-0.040	0.457	0.36	0.00275	
		mg/kg	(Deti <i>et al.</i> , 2014);	fat	(Avancini <i>et al.</i> , 2013)	d.w.	mg/kg	ug/kg(Kolan	ug/kg	mg/kg(B	
		(Shaker <i>et al.</i> , 2015);	2014);	(Kampir	(Kampir	(Ntow,	(Bempah <i>et al.</i> , 2012b);	i <i>et al.</i> ,	(Oyeyio	hinchhar	
		14.73	14	e <i>et al.</i> ,	(Kampir	2001);	al., 2012b);	2016);0.002-	la <i>et al.</i> ,	et <i>al.</i> ,	
		ug/kg fat	ug/kg	2011)	(Kampir	82	Pineapple-	0.040 mg/ kg	2017);	2018)	
		(Bayat <i>et al.</i> , 2011);	dw		(Kampir	ug/kg	0.007-	(Bempah <i>et al.</i> , 2012b);	Wheat		
		2.08-	(Raslan		(Kampir	d.w.	0.018mg/ kg	al., 2012b);	3.52		
		18.45	<i>et al.</i> ,		(Kampir	(Elbashi	(Bempah <i>et al.</i> , 2012b);	0.82ug/kg	ug/kg		
		ug/kg	2018)		(Kampir	r <i>et al.</i> ,	al., 2012b);	(Oyeyiola <i>et al.</i> , 2017)]	(Oyeyio		
		(Ishaq &			(Kampir	2015);1.	Banana-	al., 2017)]	la <i>et al.</i> ,		
		Nawaz,			(Kampir	76ug/	0.013-0.203	Cabbage-	2017) ;		
		2018);			(Kampir	kg(Abb	mg/kg	0.0-0.438 ug	Sorghum		
		0.007			(Kampir	assy,	(Bempah <i>et al.</i> , 2012b);	/kg(Kolani <i>et al.</i> , 2016);	-		
		mg/kg			(Kampir	2017);0.	al., 2012b);	al., 2016);	2.40ug/		
		fat(Kampi			(Kampir	01-4.22	Mango-0.20	0.030-0.052	kg		
		re <i>et al.</i> ,			(Kampir	ug/kg	mg/kg	mg/kg	(Oyeyio		
		2011);0.1			(Kampir	lipid	(Qamar <i>et al.</i> , 2017);	(Bempah <i>et al.</i> , 2012b);	la <i>et al.</i> ,		
		2-2.5			(Kampir	(Kao <i>et al.</i> ,	al., 2017);	al., 2012b);	2017);		
		mg/kg			(Kampir	al.,	Watermelon	1.12ug/kg	Millet-		
		fat(Kiran			(Kampir	2019)	-	(Oyeyiola <i>et al.</i> , 2017);	0.38		
		mayi <i>et al.</i> , 2018);			(Kampir		2.21ug/kg(O	al., 2017);	ug/kg		
		0.0074-			(Kampir		yeyiola <i>et al.</i> , 2017);	lettuce-0.0-	(Oyeyio		
		0.0271			(Kampir		al., 2017);	0.390	la <i>et al.</i> ,		
		mg/kg fat			(Kampir		0-22.8ug/kg	ug/kg(Kolan	2017) ;		
		(Aytenfsu			(Kampir		(Forkuoh <i>et al.</i> , 2018)	(Forkuoh <i>et al.</i> , 2018)	Beans		
		<i>et al.</i> ,			(Kampir			2016); 1.49-	3.62		
		2016); 26			(Kampir			21.5 ug/kg	ug/kg		
		ug/kg			(Kampir			(Bolor <i>et al.</i> ,2018);0.0	(Oyeyio		
		d.w.(Rasla			(Kampir			06-0.012	la <i>et al.</i> ,		
		n <i>et al.</i> ,			(Kampir			mg/ kg	Beans		
		2018);			(Kampir			(Bempah <i>et al.</i> , 2012b);	-0.36		
		1.57 ug/kg			(Kampir			al., 2012b);	ug/kg(O		
		(Abbassy,			(Kampir			1.95ug/kg	yeyiola		
		2017)			(Kampir			(Oyeyiola <i>et al.</i> , 2017);	<i>et al.</i> ,		
					(Kampir			al., 2017);	2017)		
					(Kampir			Onion-5.49-			
					(Kampir			7.88 ug/kg			
					(Kampir			(Bolor <i>et al.</i> ,			
					(Kampir			2018);			
					(Kampir			0.004-0.008			
					(Kampir			mg/kg			
					(Kampir			(Bempah <i>et al.</i> , 2012b);			
					(Kampir			al., 2012b);			
					(Kampir			0.008-0.011			
					(Kampir			mg/kg			
					(Kampir			(Koranteng			
					(Kampir			<i>et al.</i> , 2017);			
					(Kampir			Cucumber-			
					(Kampir			0.005-0.013			
					(Kampir			mg/kg			
					(Kampir			(Bempah <i>et</i>			

					<i>al.</i> , 2012b);0.22 ug/kg (Oyeyiola <i>et al.</i> , 2017); Carrot-1.30 ug/kg (Oyeyiola <i>et al.</i> , 2017); Chilli pepper-2.03 ug/kg (Oyeyiola <i>et al.</i> , 2017); Greenpepeer -2.02ug/kg (Oyeyiola <i>et al.</i> , 2017)
1	Difenoc			Gauva- 81.5	Eggplant-
6	onazole			mg/kg	5.62 mg/ kg
				(Hassine <i>et al.</i> , 2012)	(Akhtar <i>et al.</i> , 2018); Round Gourd-61.53 mg/kg (Akhtar <i>et al.</i> , 2018); Sweet peppers- 0.115-0.248 mg/kg (Abdelbagi <i>et al.</i> , 2020);Leafy vegetables- 0.0-0.08 mg/kg(Elgue ta <i>et al.</i> , 2017)
1	Dimeth	0.111-	0.0205mg/k	Papaya-	Tomato-
7	oate	0.167mg/k	g	0.002-0.012	0.007-0.019
		g	(Jayasinghe	mg/kg	mg/kg(Bemp
		(Steingrím	<i>et al.</i> , 2019)	(Bempah <i>et al.</i> , 2012b);	ah <i>et al.</i> , 2012b);
		sdóttir <i>et al.</i> , 2018);0.1		Mango-	Lettuce-
		20 mg/kg		0.004-0.018	0.018-0.024
		(Jayasingh		mg/kg(Bem	mg/kg(Bemp
		e <i>et al.</i> , 2019)		pah <i>et al.</i> , 2012b);	ah <i>et al.</i> ,2012b);3. 55 ug/kg
				Pineapple-	(Farina <i>et al.</i> ,2016);
				0.002-0.008	Carrot-
				mg/kg	0.018-0.024
				(Bempah <i>et al.</i> , 2012b);	mg/ kg(Bempah
				Watermelon	<i>et al.</i> , 2012b);
				-0.004-0.006	Onion-
				mg/kg(Bem	0.002-0.008
				pah <i>et al.</i> , 2012b);	

								mg/kg(Bempah <i>et al.</i> , 2012b); Cabbage 7.2 ug/kg (Farina <i>et al.</i> ,2016); 0.560 mg/kg (Jayasinghe <i>et al.</i> , 2019); Cauliflower 7.4ug/kg (Farina <i>etal.</i> 2016); spinach 26.6ug/kg(Farina <i>et al.</i> ,2016); Broccoli- 20 ug/kg (Farina <i>et al.</i> , 2016) ; Mustard 5.8 ug/kg (Farina <i>et al.</i> ,2016); Okara- 0.058 mg/kg (Sah <i>et al.</i> , 2018)		
1 8	Dimethomorph						Gauva- 0.48 mg/kg (Akhtar <i>et al.</i> , 2018)	Eggplant- 0.25 mg/kg (Akhtar <i>et al.</i> , 2018) Round Gourd-0.15 mg/kg (Akhtar <i>et al.</i> , 2018)		
1 9	Endosulfan	4.65-545 ug/kg(Ishaq & Nawaz, 2018); 0.002 mg/kg fat (Kampire <i>et al.</i> , 2011); 0.006 mg/kg (Kiranmayi <i>et al.</i> , 2018); 0.0-27.6 ug/kg (Bedi <i>et al.</i> , 2015); 0.0-130 ug/kg (Gill <i>et al.</i> , 2020)	47.8 ug/kg (Deti <i>et al.</i> , 2014)	142.1 ug/kg (Bempath <i>et al.</i> , 2012a)	0.28-12.2 ug/kg fat (Avancini <i>et al.</i> , 2013)	0.0155-5.43ug/kg lipid(Chen <i>et al.</i> , 2018); 0.0-5.45 ug/kg lipid (Kao <i>et al.</i> , 2019)	Watermelon -0.06 mg/kg (Hadian <i>et al.</i> , 2019); 0.29ug/kg(Oyeyiola <i>et al.</i> , 2017)	Cabbage- 28.47 ug/kg (Bolor <i>et al.</i> ,2018); 10 ug/kg(Farina <i>etal.</i> 2016); 0.312 mg/kg (Sah <i>et al.</i> , 2018); 0.17ug/kg (Oyeyiola <i>et al.</i> , 2017) ; Lettuce- 0.6-4.10 ug/kg (Bolor <i>et al.</i> , 2018); 7.0 ug/kg(Farina <i>et al.</i> ,2016); 0.28ug/kg(Oyeyiola <i>et al.</i> , 2017); Onion-1.54-	Maize- 0.08 ug/kg(Oyeyiola <i>et al.</i> , 2017); Wheat 0.08 ug/kg(Oyeyiola <i>et al.</i> , 2017); Sorghum- 0.06ug/kg(Oyeyiola <i>et al.</i> , 2017); Millet- 0.08 ug/kg(Oyeyiola	0.0-38.6 ug/kg (Bedi <i>et al.</i> , 2015); 0.40-1.2 ug/kg (Koli & Bhardwaj, 2018) ; 0.00074-0.00333 mg/kg (Bhinchhar <i>et al.</i> , 2018)

2.80 ug/kg *et al.*,
 (Bolor *et al.*, 2017);
 2018); Sweet Beans
 peppers- 0.08
 0.00-0.0889 ug/kg(O
 mg/kg yeyiola
 (Abdelbagi *et al.*,
et al., 2020); 2017);
 Tomato- Cowpea
 0.09-0.29 -0.07
 mg/kg ug/
 (Amrollahi kg(Oye
et al., 2018); yiola *et*
 0.16ug/kg *al.*,
 (Oyeyiola *et* 2017)
al.,
 2017);Chilli
 pepper-
 0.002-0.012
 mg/kg
 (Koranteng
et al., 2017);
 0.29ug/kg
 (Oyeyiola *et*
al., 2017);
 Cucumber-
 0.10 mg/kg
 (Hadian *et*
al.,
 2019);0.08
 ug/kg
 (Oyeyiola *et*
al.,
 2017);Caulif
 lower 10ug/
 kg (Farina *et*
al.,2016);
 0.943-2.870
 mg/kg (Sah
et al.,2018);
 Spinach
 7.3ug/kg
 (Farina *et*
al.,
 2016);Brocc
 oli- 6.6
 ug/kg
 (Farina *et*
al.,2016);
 Okra-0.864-
 1.128 mg/kg
 (Sah *et al.*,
 2018); 0.021
 mg/kg (Bhatt
et al.,2019;
 Brinjal-
 0.276-0.385
 mg/kg (Sah
et al.,
 2018);Caulif

			lower- 0.378mg/kg (Sah <i>et al.</i> , 2018);Carrot -0.08 ug/kg (Oyeyiola <i>et al.</i> , 2017); Greenpepper - 0.27ug/kg (Oyeyiola <i>et al.</i> , 2017)
2	Fenprop		Tomato-0.04
0	athrin		mg/kg (Hadian <i>et al.</i> , 2019); 0.485 mg/kg (Bhatt <i>et al.</i> , 2019); Cluster beans-0.401 mg/kg (Bhatt <i>et al.</i> , 2019); Mango- 0.006-0.014 mg/kg Brinjal 0.389 mg/kg (Bhatt <i>et al.</i> , 2019)
			Strawberry- 0.0-1.2 mg/kg (Jallow <i>et al.</i> , 2017); Papaya- 0.018-0.021 mg/kg(Bem pah <i>et al.</i> , 2012b); Mango- 0.006-0.014 mg/kg Bempah <i>et al.</i> , 2012b); Watermelon -0.013-0.021 mg/kg Bempah <i>et al.</i> , 2012b)
2	Fenvale	0.0-	Salad-0.0-
1	rate	34.5ug/kg (Bedi <i>et al.</i> , 2015]	0.05mg/kg (Akomea- Frempong <i>et al.</i> , 2017); Tomato- 0.010-0.016 mg/kg(Bempah <i>et al.</i> , 2012b);0.05 mg/kg (Hadian <i>et al.</i> , 2019); Cabbage- 0.003-0.017 mg/kg (Bempah <i>et al.</i> , 2012b);11.8 ug/kg (Farina <i>et al.</i> , 2016); 0.0-0.560 mg/kg(Sah <i>et al.</i> , 2018); Carrot- 0.004-0.008 mg/kg

					(Bempah <i>et al.</i> , 2012b) ; Cucumber- 0.007-0.013 mg/kg (Bempah <i>et al.</i> , 2012b); Onion- 0.014-0.022 mg/kg (Bempah <i>et al.</i> , 2012b); Cauliflower 11.8ug/kg(Farina <i>et al.</i> , 2016);Spinach 11.3ug/kg (Farina <i>et al.</i> , 2016) ;Broccoli- 4.8ug/kg (Farina <i>et al.</i> , 2016); Mustard 9.3ug/ kg (Farina <i>et al.</i> , 2016); Okra-0.588 mg/kg (Sah <i>et al.</i> , 2018); Cauliflower- 0.081-0.164 mg/kg(Sah <i>et al.</i> , 2018)		
2	Fipronil	0.190mg/kg	0.086 mg/kg				
2		(Jayasinghe <i>et al.</i> , 2019); 0.0- 110ug/kg (Gill <i>et al.</i> , 2020)	(Jayasinghe <i>et al.</i> , 2019)				
2	HCB	0.019- 0.033 mg/kg(Shaker <i>et al.</i> ,2015); 0.027 mg/kg (Kiranmayi <i>et al.</i> , 2018); 0.016 mg/kg fat (Aytenfsu <i>et al.</i> , 2016)	0.007 mg/kg fat (Aytenfsu <i>et al.</i> , 2016)				
2	Hepatch	0.002-	1.22-6.02	0.0728-	Watermelon	Lettuce-	
4	lor	0.60	ug/kg	5.01ug/	-0.001-0.027	0.20-2.30	
						Maize- 1.68ug/	

	mg/kg (Kiranma yi <i>et al.</i> , 2018);	fat(Avancini <i>et al.</i> , 2013)	kg lipid (Chen <i>et al.</i> , 2018); 0.0-5.01 ug/kg lipid(Ka o <i>et</i> <i>al.</i> ,2019); 0.08- 0.14 mg/kg fat(Al Antary <i>et al.</i> , 2015);	mg/kg(Kora nteng <i>et</i> <i>al.</i> ,2017) ; 0.8 ug/kg (Oyeyiola <i>et</i> <i>al.</i> ,2017)	ug/kg(Bolor <i>et al.</i> , 2018); 0.001-0.254 ug/kg (Kolani <i>et</i> <i>al.</i> ,2016); 0.72 ug/kg(Oyeyi ola <i>et al.</i> , 2017);Onion -0.90ug /kg (Bolor <i>et al.</i> , 2018); Sweet peppers- 0.030-0.069 mg/ kg(Abelbag i <i>et al.</i> , 2020); Cabbage- 0.001-0.248 ug /kg (Kolani <i>et</i> <i>al.</i> , 2016); 1.0ug/kg(Oy eyiola <i>et al.</i> , 2017); Carrot- 0.72 ug/ kg (Oyeyiola <i>et</i> <i>al.</i> , 2017); Tomato- 0.68 ug/kg (Oyeyiola <i>et</i> <i>al.</i> ,2017); Cucumber- 1.16ug/kg (Oyeyiola <i>et</i> <i>al.</i> ,2017); Chilli pepper- 0.82 ug/kg (Oyeyiola <i>et</i> <i>al.</i> , 2017); Green pepper- 0.7ug/kg (Oyeyiola <i>et</i> <i>al.</i> ,2017)	kg (Oyeyio la <i>et</i> <i>al.</i> ,2017); Wheat 1.24ug/ kg (Oyeyio la <i>et</i> <i>al.</i> ,2017); Sorghum - 1.26ug/ kg (Oyeyiol a <i>et</i> <i>al.</i> ,2017); Millet- 1.32 ug/kg (Oyeyio la <i>et</i> <i>al.</i> ,2017)]; Beans 1.1 ug/kg (Oyeyio la <i>et</i> <i>al.</i> ,2017); Cowpea -2.7 ug/ kg (Oyeyio la <i>et</i> <i>al.</i> ,2017)]
2	Imidac	0.111-	0.10-	0.04-	Gauva- 1.65	Tomato- 0.0-
5	oprid	0.99	0.41	0.80	mg/kg(Akht ar <i>et al.</i> , 2018); Apple-0.2-	0.51 mg/kg (Jallow <i>et</i> <i>al.</i> ,2017); 0.043-0.116 mg/kg (Ramadan <i>et</i> <i>al.</i> , 2020); Eggplant- 0.0-0.09mg/ kg (Jallow <i>et</i>
	mg/kg (Shahzadi <i>et al.</i> , 2013)	mg/kg(S hahzadi <i>et al.</i> , 2013)	mg/kg(S hahzadi <i>et al.</i> , 2013)	mg/kg(S hahzadi <i>et al.</i> , 2013)	0.65 mg/kg (Jallow <i>et</i> <i>al.</i> ,2017); Grapes-0.0- 0.98 mg/kg (Jallow <i>et</i>	

				<i>al.</i> ,2017); Strawberry- 0.0-0.2 mg/kg (Jallow <i>et al.</i> ,2017)	<i>al.</i> ,2017); 0.045mg/kg (Ramadan <i>et al.</i> ,2020); Cucumber- 0.05- 1.2mg/kg (Jallow <i>et al.</i> ,2017);0.0 71-0.199 mg /kg(Ramada n <i>et al.</i> , 2020); Leafy vegetables- 0.02-0.18 mg/ kg(Elgueta <i>et al.</i> ,2017) ;Cabbage- 0.014-0.051 mg / kg Ramadan <i>et al.</i> , 2020); Onion- 0.019- 0.053mg/ kg (Ramadan <i>et al.</i> , 2020); Potato- 0.031-0.076 mg/kg Ramadan <i>et al.</i> , 2020);
2 6	Larvin (Dahshan <i>et al.</i> , 2016)	67 ug/kg			
2 7	Lindane (Kampire <i>et al.</i> ,2011) ; (Bedi <i>et al.</i> ,2015); (Gill <i>et al.</i> ,2020)	0.090- 0.192 mg/kg(Ay oub <i>et al.</i> , 2012);0.0 26 mg/kg fat 0.0-17.8 ug/kg (Bempah <i>et al.</i> , 2012b); 0.095 -0.102 mg/ kg(Bempah <i>et al.</i> , 2012b)]; 0.004 -0.006 mg/kg(Bempah <i>et al.</i> , 2012b);Tom ato-27ug/ kg (Bempah <i>et</i>	0.022 mg/kg fat(Kam pire <i>et al.</i> ,201 1)	Papaya- 0.092-0.105 mg/kg (Bempah <i>et al.</i> , 2012b); Mango- 0.006-0.022 mg/kg (Bempah <i>et al.</i> , 2012b); Peer-0.006- 0.012 mg/kg (Bempah <i>et al.</i> , 2012b); Pineapple- 0.121-0.153 mg /kg(Bempah <i>et al.</i> , 2012b); Watermelon -0.004-0.006 mg/kg	Carrot-220 ug/kg(Bempah <i>et al.</i> , 2012a); Cabbage- 196 ug/kg(Bempah <i>et al.</i> , 2012a);0.095 -0.102 mg/ kg(Bempah <i>et al.</i> , 2012b)]; Lettuce-24 ug/kg(Bempah <i>et al.</i> , 2012a);0.004 -0.006 mg/kg(Bempah <i>et al.</i> , 2012b);Tom ato-27ug/ kg (Bempah <i>et</i>

			(Bempah <i>et al.</i> , 2012a); (Bempah <i>et al.</i> , 2012b)	0.004-0.010 mg/kg (Bempah <i>et al.</i> , 2012b); Onion 0.016-0.020 mg/ kg(Bempah <i>et al.</i> , 2012b); Okra4.837 mg/kg (Bhatt <i>et al.</i> ,2019); Brinjal0.917 mg/kg(Bhatt <i>et al.</i> ,2019); Chillipepper -2.126 mg/ kg(Bhatt <i>et al.</i> ,2019)
2 8	Malathi on	0.188- 0.989(Sha ker &Elsharka wy, 2015);0.0- 34.6 ug/kg(Bed i <i>et al.</i> , 2015)	Apple- 0.09- 0.58 mg/kg (Jallow <i>et al.</i> ,2017); Strawberry- 0.0-0.98 mg/kg (Jallow <i>et al.</i> ,2017) [50]; Papaya- 0.002-0.006 mg/kg (Bempah <i>et al.</i> , 2012b); Pineapple- 0.002-0.008 mg/kg(Bem pah <i>et al.</i> , 2012b)	Tomato- 0.005-0.062 mg/kg(Bemp ah <i>et al.</i> , 2012b); Lettuce- 0.001-0.006 mg/kg(Bemp ah <i>et al.</i> , 2012b);6.6 ug/ kg (Farina <i>et al.</i> , 2016); Cabbage- 0.004-0.008 mg/kg(Bempah <i>et al.</i> , 2012b); 4 ug/kg(Farina <i>et al.</i> , 2016); 0.279 mg/kg (Sah <i>et al.</i> ,2018); 0.007-0.013 mg/kg (Ramadan <i>et al.</i> , 2020); Carrot- 0.005-0.011 mg/kg (Bempah <i>et al.</i> , 2012b);Cucu mber-0.008- 0.0121mg/kg (Bempah <i>et al.</i> , 2012b); 0.011-0.273

			mg/kg (Ramadan <i>et al.</i> , 2020); Okra-0.713 mg/kg (Sah <i>et al.</i> , 2018); Eggplant- 0.009-0.013 mg/kg (Ramadan <i>et al.</i> , 2020)
2	Metham		
9	idophos	0.0-13.2 ug/L (Smadi <i>et al.</i> ,2019)	
3	Methom	325 ug/kg (Dahshan <i>et al.</i> , 2016)	Leafy vegetables- 0.01-0.02 mg/kg(Elgue ta <i>et al.</i> ,2017);Ca uliflower 0.9 ug/kg(Farina <i>et al.</i> ,2016) ;Spinach6.0u g/kg(Farina <i>et al.</i> ,2016);Br occoli-11 ug/kg(Farina <i>et al.</i> ,2016) ;Mustard- 6.4ug/kg (Farina <i>et al.</i> , 2016); Tomato- 0.005-0.008 mg/kg (Ramadan <i>et al.</i> ,2020); Cucumber- 0.009-0.222 mg/kg(Farin a <i>et al.</i> ,2016); Chilli pepper- 0.005-0.199 mg/kg (Ramadan <i>et al.</i> , 2020);Cabba ge-0.006- 0.071 mg/kg(Rama dan <i>et al.</i> ,2020);On ion-0.009-
0	yl		

					0.054 mg/kg(Rama dan <i>et</i> <i>al.</i> ,2020);Eg gplant-0.008 -0.307 mg/kg(Rama dan <i>et</i> <i>al.</i> ,2020);Pot ato- 0.005 - 0.010 mg/kg(Rama dan <i>et</i> <i>al.</i> ,2020)
3 1	Methox ychlor	0.137- 0.198mg/k g (Shaker &Elsharka wy, 2015);24. 99 ug/L(Bulu t <i>et al.</i> , 2011); 0.018 mg/kg (Kiranma yi <i>et al.</i> , 2018);0.0- 40 ug/kg(Gill <i>et al.</i> , 2020)]	0.0245- 0.618 ug/kg lipid (Chen <i>et al.</i> , 2018);0. 0-0.62 ug/kg lipid (Kao <i>et</i> <i>al.</i> , 2019)	Papaya- 0.004- 0.012mg/kg (Bempah <i>et</i> <i>al.</i> , 2012b);Man go-0.004- 0.006 mg/kg(Bem pah <i>et al.</i> , 2012b) ; Peer-0.00 mg/kg(Bem pah <i>et al.</i> , 2012b); Pineapple- 0.007-0.052 mg/kg(Bem pah <i>et al.</i> , 2012b); Banana - 0.004-0.012 mg/kg(Bem pah <i>et al.</i> , 2012b)]	Cabbage- 9.02-184.1 ug/kg (Bolor <i>et al.</i> ,2018); 0.022-0.031 mg/kg (Bempah <i>et</i> <i>al.</i> , 2012b); Lettuce- 57.75-165.2 ug/ kg(Bolor <i>et al.</i> , 2018); 0.022-0.031 mg/kg (Bempah <i>et</i> <i>al.</i> , 2012b); Onion-88.3- 160.96 ug/kg (Bolor <i>et</i> <i>al.</i> ,2018); 0.025-0.066 mg/kg (Bempah <i>et</i> <i>al.</i> , 2012b); 0.001-0.062 mg/kg(Kora nteng <i>et al.</i> , 2017); Tomato- 0.002-0.008 mg/kg(Bemp ah <i>et al.</i> , 2012b); Carrot- 0.006-0.012 mg/kg (Bempah <i>et</i> <i>al.</i> , 2012b); Cucumber- 0.018-0.021 mg/kg (Bempah <i>et</i> <i>al.</i> , 2012b); Chilli pepper- 0.051-0.057

3	Monocro				mg/kg (Koranteng <i>et al.</i> , 2017)
2	otophos			Watermelon 0.0-0.02 mg/kg (Hassine <i>et al.</i> ,2014)	Tomato-0.0- 0.02 mg/kg (Jallow <i>et al.</i> , 2017); Cucumber- 0.0-0.04 mg/ kg (Jallow <i>et al.</i> , 2017)
3	Ometho				Sweet peppers- 0.607-1.31 mg/kg(Luzar do <i>et al.</i> , 2014)
3	ate				Tomato- 0.0- 0.09 mg/kg (Hassine <i>et al.</i> , 2014); Cucumber- 0.0-0.98mg/ kg (Hassine <i>et al.</i> , 2014)
3	Oxamyl				
4					
3	Oxyfluo	0.0239	0.02225		
5	rifen	mg/kg (Jayasingh e <i>et al.</i> ,2019)	mg/kg (Jayasinghe <i>et al.</i> ,2019)		
3	Paraqua				
6	t			Gauva- 6.6 mg/kg(Akht ar <i>et al.</i> ,2018)	Eggplant- 4.58 mg/ kg (Akhtar <i>et al.</i> ,2018); Round Gourd-0.51 mg/kg (Akhtar <i>et al.</i> ,2018)]
3	Parathio	0.001-			
7	n- methyl/ Parathio n-ethyl	0.002(Sha ker &Elsharka wy, 2015)		Mango-0.15 mg/kg (Qamar <i>et al.</i> ,2017); Guava-0.25 mg/ kg (Qamar <i>et al.</i> ,2017)	Cabbage- 9.9 ug/kg (Farina <i>et al.</i> ,2016); Cauliflower 9.9ug/kg (Farina <i>et al.</i> ,2016); Lettuce 3.5 ug/kg(Farina <i>et al.</i> ,2016); Spinach 7.9ug/kg(Far ina <i>et al.</i> , 2016);Brocc oli- 21.3 ug /kg(Farina <i>et al.</i> ,2016); Mustard- 10.06ug/kg (Farina <i>et</i>

					<i>al.</i> ,2016); Brinjal- 0.102 mg/kg (Bhatt <i>et al.</i> , 2019)
3 8	Perfinof os	0.0006- 0.004 mg/kg(Saj id <i>et al.</i> , 2016)	0.0013- 0.0025 mg/kg (Sajid <i>et al.</i> , 2016)		
3 9	Permeth rin	0.033- 0.042 mg/kg (Sajid <i>et al.</i> , 2016); 0.31-650 ug/kg (Gill <i>et al.</i> , 2020)	0.042- 0.045 mg/kg(S ajid <i>et al.</i> , 2016)]	Papaya- 0.005- 0.032mg/kg (Bempah <i>et al.</i> , 2012b); Mango- 0.002-0.012 mg/kg[(Bem pah <i>et al.</i> , 2012b); Peer-0.004- 0.008 mg/kg(Bem pah <i>et al.</i> , 2012b)]; Pineapple- 0.025-0.066 mg/kg(Bem pah <i>et al.</i> , 2012b)	0.033-0.042 mg/kg (Sajid <i>et al.</i> , 2016); Tomato- 0.69-29.06 mg/kg(Karia thi <i>et al.</i> ,2016); 0.14 mg/kg (Hadian <i>et al.</i> ,2019); 0.005-0.032 mg/kg (Bempah <i>et al.</i> , 2012b) ; 0.66-1.51 mg/kg (Amrollahi <i>et al.</i> ,2018); 0.610 mg/kg(Bhatt <i>et al.</i> , 2019);Salad- 0.0-0.460 mg /kg(Akomea - Frempong <i>et al.</i> , 2017); Lettuce- 0.025-0.080 mg/kg (Bempah <i>et al.</i> , 2012b);1.3 ug/kg(Farina <i>et al.</i> ,2016); Cabbage- 0.022- 0.078mg/ kg (Bempah <i>et al.</i> , 2012b); 6.2 ug/kg(Farina <i>et al.</i> , 2016); Carrot-0.03- 0.052 mg/kg(Bemp ah <i>et al.</i> , 2012b);

						Cucumber- 0.003-0.009 mg/kg(Bempah <i>et al.</i> , 2012b); 0.56-0.96 mg/kg(Amrollahi <i>et al.</i> , 2018);Leafy vegetables- 0.0- 1.45mg/kg (Elgueta <i>et al.</i> ,2017);Ca uliflower7.9 ug /kg (Farina <i>et al.</i> ,2016); Spinach4.9u g/kg(Farina <i>et al.</i> ,2016);Br occoli- 6.3ug/ kg (Farina <i>et al.</i> ,2016); Mustard 4.7 ug/kg(Farina <i>et al.</i> ,2016)
4 0	Phenoat e	0.101 mg/kg (Jayasinghe <i>et al.</i> ,2019)	0.0364mg/kg g (Jayasinghe <i>et al.</i> ,2019)			
4 1	Profeno fos	0.196 mg/kg (Jayasinghe <i>et al.</i> ,2019) ; 0.25-74 ug/kg(Gill <i>et al.</i> , 2020); 1.96 ug/kg (Abbassy, 2017)	0.003mg/kg (Jayasinghe <i>et al.</i> , 2019)	2.66 ug/kg (Abbassy, 2017)	Papaya- 0.001-0.005 mg/kg (Bempah <i>et al.</i> , 2012b)	Tomato- 0.02- 0.39mg/ kg (Jallow <i>et al.</i> ,2017); 0.005-0.011 mg/kg (Bempah <i>et al.</i> , 2012b); 0.095-0.231 mg/kg (Ramadan <i>et al.</i> , 2020); Cabbage- 0.002-0.010 mg/kg(Bempah <i>et al.</i> , 2012b); 0.007-0.496 mg/kg(Ramadan <i>et al.</i> , 2020)];Carrot-0.010- 0.016 mg/kg (Bempah <i>et al.</i> , 2012b);

						Cucumber- 0.001-0.009 mg/kg (Bempah <i>et al.</i> , 2012b) ; Onion- 0.008- 0.044mg/kg (Bempah <i>et al.</i> , 2012b); Chilli pepper- 0.007-0.041 mg/kg(Rama dan <i>et al.</i> , 2020)
4	Prothiof	0.0568				
2	os	mg/kg (Jayasingh e <i>et al.</i> ,2019)]				
4	Tebuco	0.062				Cucumber- 0.091-0.159 mg/kg (Ramadan <i>et al.</i> , 2020);Chilli pepper-0.017 mg/kg (Ramadan <i>et al.</i> , 2020);Potato -0.011-0.039 mg/kg (Ramadan <i>et al.</i> , 2020)
3	nazole	mg/kg(Jay asinghe <i>et al.</i> ,2019)				
4	Organoc	133.38	243.81u	12.44	Orange-	Cabbage-
4	hlorine	ug/L	g/L	ug/kg(A	0.006-	0.006-0.14
	pesticid	(Bulut <i>et al.</i> , 2011);	(Bulut	bbassy,	0.012mg/kg	mg/kg
	es	26.04	<i>et al.</i> , 2011)	2017)	(Smadi <i>et al.</i> , 2019)	(Smadi <i>et al.</i> , 2019)
		ug/kg fat				;Tomato-
		(Santos <i>et al.</i> , 2015);				0.006-
		cheese				0.013mg/ kg
		26.14ug/k				(Smadi <i>et al.</i> , 2019)
		g				
		fat(Santos				
		<i>et al.</i> , 2015);				
		7.58				
		ug/kg(Ab				
		bassy,				
		2017)				

CONCLUSIONS

The use of pesticides in the agriculture field is indispensable. But since the last 50, years the pesticides are used indiscriminately in agriculture and public health sector.

Surface-water, groundwater, vegetables, fruits, other crops, animal and mother milk are contaminated by pesticides worldwide.

Most of the animal milk (Buffalo, Cow, and Sheep/goat) samples and mother milk samples are contaminated with organochlorine pesticides.

Almost 65-70% of the marketed vegetables and fruits in the developing and developed countries contain one or more than one pesticide beyond its permissible limit

Pesticides are called silent killers as are easily bioaccumulated in the adipose tissues of humans, and animals and persist for a long period.

These pesticides in food pose a serious threat to human health. Breast, prostate cancer; inhibition of acetylcholinesterase enzyme activity; endocrine disruption; diabetes; obesity; cardiovascular diseases; reproductive problems; behavioural changes; neurological and immunodeficiency disorder are some adverse effects of the long- term exposure to pesticides.

To minimize the negative impact of the pesticides on human and environment effective and convenient guidelines must be framed and those should be implemented.

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No original data has been used in this review all information as accessed from published work.

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