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The Context Socio-Environmental an Opportunity to Teach Public Health "Environmental Learning Scenarios" In Metztitlán Hidalgo, México

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Abstract

Metztitlán Hidalgo, Mexico is a population that is characterized by productive labor camp food and also has temporary irrigation systems, a situation that allows you to add such statewide percentage of food production nationwide field is an important municipality in the field of agriculture. Farmers have used a wide variety of agricultural products, including, herbicides, fertilizers and pesticides, it is known that the latter is associated with health risks and even the manifestation of diseases like cancer. Undergraduate students of a surgeon's career take courses such as Introduction to public health and epidemiology, during classroom lectures ranging doubts towards the cure of diseases, a situation that motivated contextual activities in pursuit of learning in the context, where you insert the origin of them to make special emphasis on understanding biological processes prior to the manifestation of these. Therefore, it was decided to start field visits for contact from these types of contexts and by developing a qualitative scientific research biological processes and assess their learning on the eve of achieving a better understanding and impact professional future in the preventive.

Keywords: biological process, cancer, Environmental learning scenarios, food, risks, pesticides.

Introduction

Since the beginning of agriculture, man has sought to optimize procedures for a good harvest and eliminate pests of crops, already in the years thirties were the first synthetic chemical pesticides. Then after the Second World War, production and use of synthetic pesticides and chemical fertilizers began large-scale (WHO, 1990). More than a third in the world people work in the field of agriculture, commonly the workers and small agricole lack training and have little access to the necessary information and even in cases where farmworkers do know that pesticides are used improperly or unsafely, very much times afraid the consequence of refusing unsafe work practices or even report on them. Several factors influencing the protection of workers, one of them is the necessary equipment which may not be

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available, be poorly maintained or be inadequate for the weather and even if the protective equipment available socioeconomic status influences their purchase. So the pesticides are often used inappropriately or in incorrect concentrations, another problem facing farmers is that containers pesticide often label contains information that farmers or farm workers unreadable due to insufficient literacy pesticide exposure has been mainly associated with poisoning, nervous system disorders, reproductive problems, immune system effects , endocrine disruption and conditions more serious the presence of cancers and tumors. According to risk prevention in the use of pesticide, risk is the result of a combination of different variables. toxicity, exposure time, amount absorbed or product concentration, route of entry of the poison into the body, individual susceptibility and handling (UNEP, UNICEF and WHO, 2002)

Pesticide is defined as " a substance or mixture of substances intended to control any pest, including vectors that transmit human and animal diseases, unwanted species that cause harm or interfere with agricultural and forestry production and the defoliants and desiccants substances. " (Semanat, 2007).Camarena et al. (2012) said regarding the effects of pesticides by indirect contact, often suffer from irritation, itching, hives and skin spots, the act of plucking can cause headache due to the amount of powder and liquid which are exposed during this activity.

As the contact directly to, refer to the most risky activities are to be weeding , since touching the mat and breathe the pesticide, and " paint" the plants with fungicide to cure diseases of plants, as they have to touch the task performed , they point out that sometimes causes vomiting and headache being in greenhouses because they are breathing the "liquid" that was applied in the furrows , While recognizing that discomforts such as vomiting and headache are associated with pesticides and these son venom, not categorized as poisoning.

When attending health services with these conditions attending physicians only provide them to follow medicine as a case of poisoning. In Mexico synthetic pesticides have been used since the middle of last century, which have become essential for agriculture. No culture where not apply to a greater no culture where not apply to a greater or lesser degree, their use has led to an increase in agricultural production and livestock. But, these products can be dangerous themselves do not have adequate training and personal protective measures, and for farmers and Mexican laborers who are at risk and suffer adverse effects on their health and their families - adverse effects are reported in Mexico damage reproductive health, as abortions and premature births in couples farmers exposed to organophosphate pesticides and impaired semen quality in different parameters like sperm morphology , motility , sperm concentration and DNA damage schematic (Perez et al . 2010; Perez et al, 2012) . Arellano et al, (2012) comment that chronic health effects of day laborers may result in changes in fertility, birth defects, increased the number of deaths and abortions or promote the development of early chronic degenerative diseases.

The integrity of the human genome is an indicator of the health of a group of people, the stability of genetic information in the DNA of individuals guaranteed to some extent, humans retain their offspring to genetic information that characterized as a species, the deterioration of the integrity of the human genome, called also geno-toxic damage, is one of the many challenges posed by the current model of economic development for several reasons first, because the ways of using natural resources mobilized and generate waste chemical, physical or biological agents that exceed the capacity of the biosphere to reverse its accumulation and toxicity, secondly, this deterioration can go unnoticed because people , when exposed to these genotoxic agents such accidental , environmental or labor , lack sufficient information to detect long-term effects , the invisibility of the deterioration in the structure of DNA , and thirdly , it is women 's social group for reproductive engagement, constitute the most vulnerable sector to genotoxic risk for occupational exposure to pesticides. To become aware of the problem of pesticides, it is important to realize that in Mexico DDT was used until the year 2000 and is detected metabolites of DDT in breast milk samples and maternal plasmas of postpartum women from two endemic areas malaria , to estimate the level of perinatal exposure to DDT and its metabolites DDE and DDE - MeSO2 . Levels in maternal plasma and umbilical cord plasma were respectively 13 and 48 times higher than those reported in women from Slovakia, and the concentration in milk was 17 times higher than that detected in Swedish women. Levels of DDE - MeSO2 quantified in maternal plasma and umbilical

Were respectively 13 and 48 times higher than those reported in women from Slovakia and the concentration in milk it was 17 times higher than that detected in Swedish women. Levels of DDE-MeSO2 quantified in maternal plasma and umbilical cord were almost equal this suggests the ability of this metabolite to cross the barrier cross the placental barrier. (Yáñes et al, 2012). The toxic effect of pesticides has already been demonstrated in humans (Paz-y-

Miño, etal, 2002, 2004 and 2007). Even using rodent animal models of both genders of the NMRI and BalbC /c strains (Arecimbia et al, 2009) and cord plasma.

It has been observed that carbofuran affects the central nervous system, inhibits acetylcholinesterase, nerve impulses interfering organisms (CNS, causing anxiety, headache, irritability and aggressiveness, also affects the immune system, with obvious symptoms such as fatigue, lack of appetite and general weakness. has teratogenic and mutagenic effects (Maldonado, 2007).

The World Health Organization WHO, classified as highly dangerous to carbofuran, specifying that in the case of direct ingestion of food or waste form, is extremely toxic. The symptoms of acute poisoning are presented as skin irritation, choking, nausea, vomiting, salivation, cold sweats, abdominal pain, diarrhea. Tearing, double vision, pupil contraction. In severe exposure can cause muscle spasms, loss of coordination and respiratory arrest. The usual symptoms of severe poisoning this chemical is pulmonary edema. Distribution companies warn that people with low basal cholinesterase and liver disorders can aggravate your state with exposure to this pesticide (Rap-A, 2008). Results obtained by Ruvalcaba et al (2015) suggest to those who have the possibility to incise in the generation of public politics where it takes in mind the control of sales of agrochemicals, the sales of protection equipment for the applicator, including the equipment that is being sold in independent establishments. That was if they sell pesticides these establishments can form part of a package of buyer-seller of protection equipment. It´s recommended that pesticide containers get controlled. Supposedly some are thrown on the ground, increasing the risks at population level. It is not possible that we keep selling, offering or giving away pesticides. If the field worker doesn´t count with the protection, we are giving them a chemical bomb that will impact his health and his family´s as well. The events of intoxication make necessary that generation of public politics in our country (Ruvalcaba et al, 2015; Cortés et al, 2015).

Methodology

"Teamwork in the classroom". Initially students are prepared regarding how a scientific research project, why it is necessary to start with projects investigation from its formative stage as students it is necessary to apply to scenarios to observe that this is a quality to be developed, which is the foundation of the scientific method and every scientist should potentiate, which is not the same use of technology, classroom presentations to sensitize to the socio-environmental context, the Environmental learning scenarios that this represents an opportunity to increase the capacity of analytical observation and in turn approach and understanding with nature, understanding of biological processes and the possibility of building scenarios in context, to build where the source of learning occurs health-disease process.

Results

"The socio-environmental context". Metztitlán Hidalgo is a town that is located 81 kilometers from the city of Pachuca Hidalgo City and 175 kilometers from Mexico City DF, its climate is 12-22 Celsius 400-1300 mm. Semi warm Dry (49.0%), semi-tempered (27.0%), temperate sub humid with summer rains, low moisture (8.0%), temperate sub humid with summer rains, high humidity (6.0%), semi semi-dry (6.0%) temperate and humid with summer rains, medium moisture (4.0%) has 128 seats. Approximately has 21,623 inhabitants, is considered county seat, is geographically located at 20 ° 36 'N at about 1,320 meters and length 98 degrees 46' and the main job is the job in the field with approximately 9,244 acres of seeding. (http://www.inafed.gob.mx).

During the stay in these scenarios or fieldwork was inevitable observe how they prepare pesticides in a bin of plastic, which serves pumps or filling them, that will serve each overlooking the container, note that no have mask or specialized clothing or gloves for this kind of work, just as seen in the pictures 2, 3 and four as stated by inhalation and later by tapping the touch screen or filter pump when is served in this, without any protection, we asked whether these pesticides would apply knew, if they knew about any effect on your health and the answers was: "we know it is, but it does not hurt." Visiting this context was a result of a neighbor of that community said a case of murder for using a pesticide called FURADAN, if anyone knows, you better stay away from you because it has been associated with intoxication and death in this community. Is a pesticide banned in Europe and the U.S., in Mexico it is said that it can be used under certain restrictions, but these restrictions is unknown and even the peasants do not have safety equipment to implement this type of chemical.

Figure1.The environmental and health ignorance regarding what type of impact substances are used as pesticides.

Figure 2. The impact to the imminently related to educational level environment, this denotes do work with people from teaching environmental education.

The observation in the socio-environmental context "environmental learning scenarios" allows the design of subsequent projects, this is part of the comments of the team, for example it is possible to calculate or to estimate the number of liters of pesticides circulating in the air, not only those pesticide sprays airborne during application of these chemicals, but starting in the number of containers that are left lying on the field, for example, 0.1 ml of pesticide adhering to the plastic container on taking into account the amount of pesticide per liter of sale on the premises, at least during the growing season, be it temporary or irrigation.

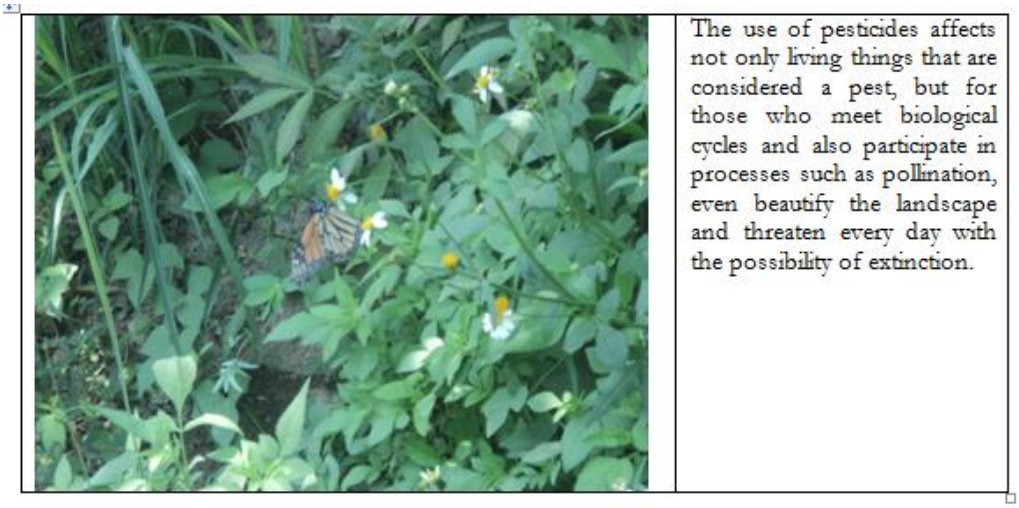
It is important then use the Environmental scenarios to provoke students' thinking and this way when they have to make their research projects of this type, their research topics will be more relevant, include biological and

chemical processes stimulated by several factors, including the low level of education, type of learning obtained even when a basic level, the type of professional is required even before the attacks that occur in the health-disease process. Pesticides are used in order to obtain higher production, but, education and care for their environment, where they are, this will be a result of teaching methods in the life sciences and in general, have not been those able to arouse thinking, questioning their reality and design strategies for the care of their environment. This type of garbage impacts the natural environment is the result of work activity in the field, this is where biologists and other professionals as multidisciplinary team with constructivist teaching methods applicators of pesticides and other chemicals are required, as are the byproducts polluting the labor income ambient environment. Work activity turns in the direction of agricultural production, agro-businesses that sell easily are located in the town, but some questions might be to investigate.

What are the health risks of people who work in the sale of agrochemicals? Student made many more questions and say they have been impacted by the results of qualitative people who suffered from interviews Furadan poisoning. Interviews with vendors indicate that farmers do not have protection against exposure to pesticides.

Any business that sells these types of inputs are detected, which clearly states that have altered daily biological processes exposed to these chemicals.

Figure 3.Environmental impact and wildlife, biological alterations that have been unavoidable.



Cases of pesticide poisoning

Were interviewed in depth to 4 persons engaged in pesticide application , three of them it was necessary to go to their homes for being marked for that event by residents of this context and one that we caught to go to business marketing agrochemicals in the four matches was detected in the symptoms that point in his speech, including point (severe headache, nausea and dizziness among other symptoms) agree on the need hospitalization, a person who died had applied the chemical and sat down for a beer and there he stayed dead , agree that they do not have equipment to apply these chemicals , they do not even know where to sell them , this means they are daily exposed by any means, and that the effects of such exposure may be immediate or long term and this is where the involvement of a multidisciplinary researchers conform to peer into biological processes and immediate action from the proposed public policies to control the sale and use of pesticides safely and even if equipment is needed in the search for biological control alternatives to ensure their crops (Ruvalcaba et al, 2015).

Discussion.

"The student learning". Regarding student learning, this type of activity is linked to a topic called The determinants of health (Lalonde, 1974, 1978) notes that the environment is a determinant of health , including determinants of health include The assistance related to health care , biological , environmental, and lifestyle , from the didactic criticism is said that students must learn to know , understand and manage information (Zarzar, 1996). This type of educational activity that allows , come and learn about nature , be sensitive to this kind of actually detected in this socio- environmental context , to dabble in documentary research and relate it to the context imbues learning part of understanding biological processes or at least makes you feel immersed in further research on the

matter and finally manage information could mean for the expression of their findings to the generation of new knowledge and innovative able to effect change at a social level , in the health, to make informed proposals in exploring contexts or real scenarios , this agrees with the following:

Therefore, learning-centered knowledge construction and with an eye on generating transformation of socio-environmental conditions and public health in a community is immersed in the teaching of biological principles, respecting the environment, the care of the individual and collective health from social principles, such as participation in tasks where shared efforts generate common benefits. But for this you need to venture into the socio-environmental context. Generate environmental awareness is one of the basic purposes that emerge from adopting this perspective. (Ruvalcaba, 2010). In this sense, it was essential to create the ability to question and self-questioning reality. Only in this way a person will develop thinking skills and questions will arise that lead to detect and create problems in the socio-environmental context and generate alternative solutions to social and ecological problems of their environment. Ideally, students acquire the ability to question and challenge their reality, only in this way will think, doubts will arise that lead to problematic research and therefore the search for solutions to the ecological problems of their environment.

It is vital link learning from anywhere, with the reality of the environment, where the learning process has as pillars of society, culture and promoting the subject in formation by questioning their world, their actually. Therefore, the importance of linking learning with reality, where the student seeks a practical application in their environment, so one day we can find solutions to major environmental problems becomes important. (Ruvalcaba, 2002).

It has also been noted previously and rightly therefore the challenge is focused on transforming classrooms open classrooms in contextualizing of a specific knowledge into meaningful knowledge and action. (Bonilla, 2011). Understanding is undoubtedly the main objective of teaching. If students will learn in the context from the biological bases from constructivist pedagogy at some point in your professional life possible with his actions encourage and demonstrate the ability of people from the community to operate in accordance with criteria where the risks are minimal or even risk-free to solve their problems.

For the teaching of health education with applications in everyday life from the development of strategies and the projection of their reality, based learning strategies for people of their own community, as I demonstrate studies education health from photo-murals by members of vulnerable communities and enabling impact, individually and collectively to improve the quality of life of communities (Cortes, 2011; Cortés, 2011b and 2015; Ruvalcaba, 2013 and 2015).

Conclusions.

Learning to evoke the thought that the student is strong and mostly constructive if it runs where the problem exists to investigate, where the teacher mediating action is incident and allow exploration of the environment or socio-environmental context. In our daily lives as students, learning of biology should appreciate nature, the social context where the problems where students have the opportunity to check what they have learned in the classroom, to venture into other aspects that were not exercised by through observation and even in scenarios where you have the opportunity to prosecute future transformation, not only in the minds of people who live there, but in the natural context where their doing involved in the maintenance of ecological balance and thereby influence in the control of health problems. Studies in Europe and the United States of North America that furadan is a toxic-dangerous pesticide, which in addition to mutagenic is associated with cancer, represent an ecological indicator for other countries, including those vulnerable or poor and in ways of development not to use this type of pesticides and expose obvious risks to the human population.

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