Scientific Works. Series C. Veterinary Medicine. Vol. LXI (1)
ISSN 2065-1295; ISSN 2343-9394 (CD-ROM); ISSN 2067-3663 (Online); ISSN-L 2065-1295

ECOSANOGENESIS AND ECOPATOLOGY IN RELATION OF ANTHROPOZOONOTIC AGENTS IN CONTEXT OF BIOSAFETY

Iudith IPATE[1], Alexandru BOGDAN[1], Simona IVANA[2] , Nicolae IPATE[1], Lucian ALECU[1], Janos SEREGI[4], Janos TOSSENBERGER[4]

[1] Romanian Academy-Centre of Study and Research for Agrobiodiversity , 13 September Blvd, , Bucharest, Romania, Email: ipate.iudith@gmail.com, alecutbogdan@yahoo.com,
[2] University of Agronomic Sciences and Veterinary Medicine of Bucharest, 59 Mărăşti Blvd, District 1, 011464, Bucharest, Romania, Email: simonaivana@yahoo.com,
[3]University of Kaposvar, Hungary, Email: seregij@t-online.hu, Email: tossenberger.janos@ke.hu.

Corresponding author email: : ipate.iudith@gmail.com

Abstract
An anthropozoonotic agent whose circulation is mainly determined affects the food complex managerial concerns. In the last 10 years Romania reported over 788,000 foods borne illness associated. The cost of medical therapies has increased considerably as determined by laboratory investigations for accurate etiological required. New rules were adopted security strategy taking into account the movement of aggressive agents and their potential contaminating the food. The pragmatic complex factors of ecosanogenesis contributing to the interdisciplinary vision in relation: human - product – nature. Redesigning techniques and technology, and management will lead to gradual replacement of the current economic guidelines with other levers that converge for example by minimal pollution, but also to the prices of raw materials and stimulating savings, reduction of energy consumption etc. Meeting the nutritional and sanitary quality requirements must adapt to new regulations to ensure consumer prerequisite – compliance. Enhancing food movement - national, regional, global - through trade creates new opportunities contaminant level amplification and diversification of pathogens.

Key words*: consumer, ecopathology, agents, trends*

INTRODUCTION

The eco-pathology is a broad concept that describes the connection between disease and the environment. The need for such a concept appears in the current situation of over-exploited environment where the main concern is not only production, but also the effects of processes which reach the final result. These effects are referred eco-pathology it directly studying the link between environmental change and disease. The discovery that some pathogens emerging or re-occurring originate environment made it necessary to understanding how the environment influences. To understand the relationship between environmental changes and pathogenesis of various diseases is necessary to put forward several concepts from many different disciplines. It is important to understand the three main components of this process: environmental change manifests itself as a complex network of social and environmental issues that ultimately have an impact on the disease; the dynamics of infectious disease transmission is altered in many cases the environment; disease manifestations are often the result of interactions between environmental changes and transmission cycle of the pathogen. Public health experts have increasingly more arguments from studies that environmental changes that include social changes such as urbanization, development of transport infrastructure, and ecological processes such as the use of arable land, water and biodiversity decline by the disappearance of certain species and climate change are closely related with individual and population health. These results are alarming, considering that these phenomena are often anthropogenic interconnected and accelerated. Although about a century prevent and treat most often successful infectious diseases, they remain an important public health problem overall, accounting for over 13 million deaths every year. As already mentioned, changes in society, technology and the microorganisms itself contributes to the emergence of new

diseases, the re-emergence of diseases eradicated and not least the appearance of germs resistant to treatment.

MATERIALS AND METHODS

The data, collected from INS and EUROSTAT, have been statistically processed and interpreted, building the trend line. Were used as statistical methods and methods casuistic. Data collection method will be particularly quantitative because it is an objective method, deductive and generalized. These quantitative approaches will be made in the methods concerned. It will use both sequential methods, each method (quantitative or qualitative) research will be addressed at the same time, as well as theoretical and methodological triangulation method for determining the indices. Numerous bibliographical sources were analyzed by experts in the field, FAO expert reports, scientific papers and documents of the Official Monitor.

RESULTS AND DISCUSSIONS

The route of transmission is important in a changing environment. An example are both helminthes parasites and protozoa, which are very important for the transmission characteristics of water, soil and food. Both the potential to produce large numbers of transmissible stages and their stability in a wet environment, for example, makes them a threat to the public health and veterinary field. Due to the growing need to exploit the environment, increase the likelihood of exposure to these parasites. This can cause outbreaks in developed countries. It is therefore necessary to refine methods for the detection and isolation of these pathogens. Unlike helminthes parasites whose development cycle we know better, still doubts hanging over some protozoa, which led to intense study and improve detection techniques. Cryptosporidium is an example, where there are new immunological methods, microscopic and molecular screening and diagnostic. PCR- polymerase chain reaction methods such as increased sensitivity and specificity of these methods and standardization of techniques have been widely used.Another very important in ecosanogenesis is the climate. People have to understand the impact of climate change on disease long before discovering the role of infectious agents at the end of the 19th century.

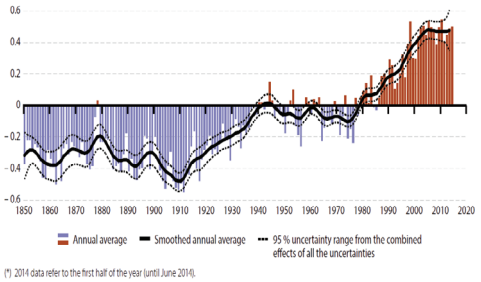
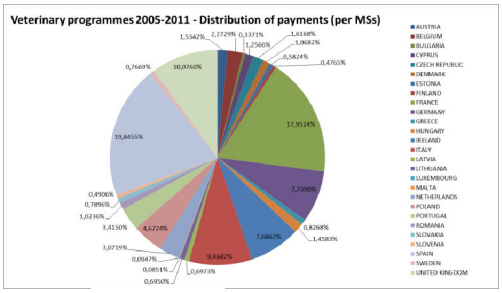


Figure 1.Global mean temperature deviation, 1850-2014
Sources: Eurostat statistics

There are three categories of studies on the link between climatic conditions and infectious disease transmission. The first type of study is studying the implications of climate change on their old, the second examines new links between both and third draw possible patterns that may appear in future relationship between the two. Conversely, the presence of certain species in the environment, can itself be an important indicator of environmental quality. When it comes to water, for example, the presence of certain parasites can provide valuable information. Reasons which are relevant for these species may represent a quality criterion. First, there are more species than parasitic species of its own. In the second place, for example the helminthes parasites have a complex life cycle with the different needs of each stage, each stage thus can provide data about the sensitive and various environmental quality. Third, the host parasite interaction itself can give valuable information. If, for example, the parasite is very sensitive to pollutants, then the incidence of infection with this host will fall. If, however, the host parasite itself is more sensitive than the average, it will decrease resistance and parasite prevalence and severity of infection increases. Assuming that current trends continue, global warming through the greenhouse effect becomes

unavoidable imbalances between ecosystems will emerge, and as these processes will be accelerated so it will be harder for people to adapt without major consequences. Climate change has always occurred, but what is different now is the speed with which changes occur because of human intervention. The potential impact that these changes have on the transmission of pathogens can be summarized in 3 main ideas: change the ecology of vectors (mainly arthropods) that link high incidence of infections in tropical and subtropical areas; the impact of risk factors such as reducing water availability, ultra-refined foods, ultra-efficient farming techniques; increasing incidence of diseases transmitted by water, soil and air as a consequence of socio-economic changes.

The main objectives of veterinary programs are to ensure a high level of protection of animal health and public health, encouraging livestock sector productivity growth and economic viability of sectors directly or indirectly affected by an outbreak of animal disease.



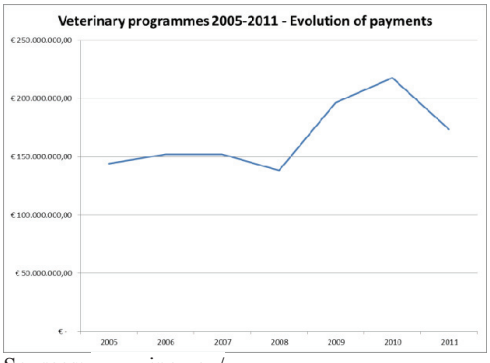
Sources: www.ipex.eu/

The EU contribution to the programs of eradication, control and monitoring of animal diseases are by far the largest expenditure in the EU budget for food safety. This contribution aims to help the gradual abolition of animal diseases and the implementation of disease surveillance measures in the Member States and the EU as a whole. It is also the EU Strategy in animal health, which aim to ensure a high level of animal health, public health and consumer protection.

Changes in the distribution of parasitic diseases. Infections dependent vector It depends on parasite survival and geographical distribution of the vector. Thus, according to new climatic trends, insect-borne infections will increase in intensity. An example is the Plasmodium of extrinsic incubation period which is inversely proportional to the ambient temperature. Vector-borne infections are uncommon in cold climates. The incidence of vector-borne diseases is determined by: the number of intermediate hosts or vectors and reservoirs present, environmental conditions (especially humidity and temperature);behavior and customs of society that are in dynamic equilibrium with vector-borne pathogens. Until recently, Plasmodium was present in the southern parts of Europe and North America. Withdrawal of this pest in southern areas has not yet sure why, but it is believed that was a contribution efficient sewerage systems and improve itself socio-economic conditions. This dynamic clearly illustrates the impact it has on socio-economic development pathogen transmission. There are still assuming that the temperature rise would favor the re-emergence of Plasmodium return of favorable conditions of life of the vector mosquito - anopheles.

There are parasites which are dependent on the vector to be transmitted. Two examples of Taenia Solium and are Strongyloides Stercoralis which eggs are laid in moist soil and whose development cycle is temperature dependent. In the event of rising global temperature environment they will be able to develop more effective. Another element that changes the dynamics of infectious diseases is the ultra-violet radiation type B, which is known to be immunosuppressive. If the population is exposed to this radiation, the percentage of suppressor T lymphocytes and helper lymphocytes will decrease, leading to immunosuppression population. Thus, the incidence of infectious disease increases apparently healthy patients and some opportunistic infections in immunosuppressed patients will have a high degree of lethality (such as in patients with HIV, tuberculosis). Global warming has an effect on the nutritional status of the population. This is already visible in underdeveloped countries like those in Africa, where drought are already visible evident when it is not able to

irrigate by modern methods. And global food production will decrease when the ocean levels will rise at the expense of arable areas. The same increase in intensity UV type B that I mentioned above is responsible for the decrease in photosynthesis and to hinder agriculture and food production. Malnutrition will in turn predisposes to tuberculosis and leprosy patients unimmunized. Despite this picture, there is a possible beneficial effect of the overall increase in environmental temperature. Multiple sclerosis is considered an aberrant immune response to a virus has not been isolated yet. The infectious agent is not associated with warm environments, multiple sclerosis manifested especially in cold climates. It is possible that with global warming, decrease the incidence of this disease to them.
In conclusion, the human impact on the environment will be increasingly faster, complicated and severe, and with it the transmission of infectious agents, especially parasites will increase.



Sources: www.ipex.eu/

For the whole period considered, two Member States, namely France and Spain, have absorbed nearly 38% of total EU contribution. The other major beneficiaries of the funds with an aggregate rate of absorption representing a further 35% payments made by the EU were Italy (9.5%), the UK (10.1%), Germany (7.7%) and Ireland (7.7%).

Antrophozoonosis are common diseases of man and domestic and wild animals. We also know of over 90 entities worldwide of which 20 are present and recognized in our geographical area. Tank, the most important source is represented by: wild and domestic birds (listeriosis, yersiniosis, salmonellosis, toxoplasmosis,), rodents (viruses, bacteria, fungi), carnivores and grazing livestock (sheep, cattle, goats, etc.). Anthropozoonosis have a professional nature (veterinarians , animal caretakers, foresters, forestry workers) are natural focal disease, the presence of pathogens being provided through a continuous cycle that occurs in a particular ecosystem, a specific biotypes. Clearly, the transmission can be done in both directions. The emergence of disease depends on: the introduction of the agent population, diffusion and persistence to the new host; factors that favor natural evolution and are considered less important than behavioral ones. Andy Fenton (2005) classifies anthropozoonotic agents in connection with the emergence of: pathogens which have a low transmission rate, both the host population is endemic and in the second one, after crossing the species barrier; interspecies transmission occurs, but it is rare, transient phenomenon is generated (for example, West-Nile virus with a transmission rate supported in the bird population, in excess of sending the species barrier to humans by vectors, while the transmission interpersonal, does not occur; pathogens with low transmission rate in the host population endemic, but can easily move frequently and species barrier. It is maintained by transmission between the two species, which is equivalent to the statement that 'apparent persistence (multi-host pathogen apparently) because there is no transmission interspecies in the second population. In the absence of host population endemic pathogen disappears from circulation. An example is the rabies virus in Africa, which has the only endemic host dog (rabies in foxes being persistent because of their low density, with the reservoir epizootic domestic dog (C. Ciufecu, 2008) multi-host pathogens, showing a high rate of intra and inter transmission. The pathogen remains in either of the two populations in the absence of the other. For example: the presence of brucellosis around Yellowstone Park, the infection is endemic in domestic animals (especially cattle) with high potential emerging pathogens with a high transmission rate in the second population and a low transmission rate between the two

species. Crossing the species barrier, time and again, is rare, but once exceeded, interspecies transmission is high. If the home is zoonotic pathogens HIV and HIV 2 passing to humans from monkeys and transmitted interspecies effective enough to become persistent and generate pandemic. Most of zoonotic agents are multi-host, showing their pathogenicity for man (in over 60% of cases), wild primates (over 68% of cases), or domestic animals (90% of cases). Attention should be focused on specialist ecological and evolutionary characteristics of emerging agent, depending on the degree of interspecies transmission and after crossing interspecies endemic species barrier. Emergencies related to episodes of disease in animals, especially those that are subject to the phenomenon of "spill-over" (route) to the human host, requires an integrated approach to control. The likelihood of such diseases are continuing, as well as potential impairment of human health, surveillance and response systems / control for these emerging zoonoses re-emerging undoubtedly be improved and strengthened and expanded nationally internationally. Applied research, extended horizontally, based on modern diagnostic methods, including human health sectors, domestic and wild animals is existential to ensure planning and development based on scientific evidence of early prevention and control programs.

Biosafety is the concept which prevent the possible effect *of infectious and biochemical factors on the health of the* individual. It has many meanings in several disciplines. The first definition is the set of preventive measures that reduce the risk of transmission of infectious diseases among domestic animals and, in outbreaks involving quarantine, and living modified organisms. The term is first used in agricultural and environmental communities. After 1990, the concept appears bioterrorism prevention joins the idea of alienation biological materials in laboratories profile. This is the most complete definition published in 2010 (Koblentz) in the National Academy of Sciences, including security against any malevolent actions or use of any hazardous biological agents and especially against the possible development of biological weapons or biotechnologies such. Finally biosafety refers to protect against the development of a new outbreak of any kind. Due to the trends of globalization of food sources in the public health systems need to develop global surveillance networks and the establishment of early warning and communication networks at national, European and global levels.

CONCLUSIONS

Confrontation between quantitative and qualitative requirements of the food is a balance of increasingly difficult to meet in the context of population (about 7 billion inhabitants) which requires a considerable increase of food. Geographically limited potential sources led to the acceptance and promotion of amplification solutions necessary food for animal consumption. Studies UN-FAO estimates that by 2050, agricultural production must increase by 70% to ensure a decent needed food. The trend of centralization of food production, increased food consumption raw, unprocessed or, on the contrary, foods that are not cooked in their own household and the trend of globalization of food sources increase the risk of transmission of disease through food and water. Interventions aimed at preventing and controlling this type of infection involves the collaboration of several factors responsible for providing conditions that avoid entering or interrupt their transmission chain, such as livestock best practices, best practices in food and related inspection procedures for promoting food safety, food microbiological monitoring procedures in the storage and marketing of food and related inspection, consumer education, food-borne disease surveillance - including microbiological surveillance by molecular typing of pathogens, investigating outbreaks, measures to limit transmission, resolution problems and prevent future unwanted events. The European Commission has reacted to new trends by adopting a comprehensive legislative package aimed at increasing food safety and consumer confidence, whose application is mandatory in all Member States. These measures based on scientific evidence include: a comprehensive and

holistic approach to food hygiene at all levels of the food chain; monitoring of zoonosis agents in the food chain and animal feed sources; establish control programs for salmonellosis and other food-borne zoonosis diseases to reduce the public health risk control measures and grounding; food safety and quality evaluation of microbiological criteria based on clear, applicable both at the manufacturing plant and products on the market; control of Spongiform Encephalopathy harmonizing measures in member countries and the adoption of clear rules on imports from third countries.

Prestigious international or European organizations such as the Council of the Codex Alimentations, WHO (World Health Organization), FAO (United Nations Food and Agriculture), EFSA (European Food Safety Agency) etc. and enrolled among the priority objectives and evaluation activities on Biosafety regulation of food. ECDC and EFSA developed a joint report on trends and sources of zoonoses and zoonotic agents and food-borne disease outbreaks in the European Union in 2011, which states that the European level is the most widespread zoonosis campylobacteriosis, salmonellosis while, as listeriosis have recognized a decreasing trend. Infections with E. coli verotoxigen recognized an increase of 159.4% compared to 2010, following the outbreak recorded in 2011 in Europe. Research attention must now turn to the particular zoonoses pathogens, given the growing contacts of human and animal populations in terms of zoonosis biodiversity pathogens, their prevalence in animals of environmental change and increasing contacts with human populations. Performance measures implemented by EU co-financing in the period 2005-2010 was assessed both internally and through external studies conducted in the last few years, based on tangible results of EU action to support Member States in eradicating, controlling and monitoring of certain animal diseases. Those studies showed an overall success veterinary programs, but revealed some weaknesses in the implementation problems have adversely affected the results of the program. It is expected by addressing the deficiencies, continuous modernization of financial management tools and optimization activities of the Task Force.

ACKNOWLEDGEMENT

This paper has been financially supported within the project entitled ***„SOCERT. Knowledge society, dynamism through research",*** contract number POSDRU/159/1.5/S/132406. This project is co-financed by European Social Fund through Sectoral Operational Programme for Human Resources Development 2007-2013. **Investing in people!**‖ and contract number POSDRU/159/1.5/S/141086. This project is co-financed by European Social Fund through Sectoral Operational Programme for Human Resources Development 2007-2013. **Investing in people!** and Research Theme Romanian Academy-INCE-CSCBA- 6.2.9.

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