

## DYNAMIC SPREAD OF BRUCELLOSIS IN HUMANS IN THE AREA OF KORCA FOR THE YEARS 1999-2009.

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### ABSTRACT

Brucellosis disease is progressing rapidly, marking not only the vast spread to cattle, but now seriously endangering human health. Brucellosis is an infectious disease dekurs chronic, caused by bacteria of the genus *Brucella*.

This bacterial zoo-noses is transmitted as an infectious disease even in people from infected animals, products and by-products produced from them. In the brucellar infection map in all world Albania is also included, among the endemic dissemination countries. In 1988 our country was declared healthy from brucellosis. But political and economical changes that occurred in our country after 1990, brought a significant increase of brucelar infection in animals, as a result people were infected too. Therefore, the object of our study is the dynamics of the spread of brucellosis in humans at Korca's region for the years 1999-2009.

For examining this disease two methods are used in our bacteriological laboratory: evidence of Rosa-Bengal (RB) and Wright test (SAT). We have studied different cases in these years and from our analysis the result is positive for 1698 people.

The increased number of people infected with brucellosis shows that this disease poses a serious problem with social risk to the health of population.

These data will serve as a microbiological archive to prevent and reduce this disease, until it is eliminated by combining both veterinary services and hygienic sanitation.

### INTRODUCTION.

Brucellosis is one of the five most common zoonosis in the world caused by bacteria of the genus *Brucella*, intracellular, gram-negative, unsporofomed, optional.

Brucellosis from the moment that was discovered and reported to the 19th century, remains a problem worldwide and more one of the most widespread zoo- noses in the Mediterranean region where our country is also a member.

Epidemiological Surveillance in people takes a special importance regarding the endemic countries where enters Albania.

Initially, in Albania, the hearth was hot at Gjirokastra (where it is also identified the first case of brucellosis in 1925), but after a period of timit went up to southeast regions as Korca and Kolonja.

While now there have been registered different cases with brucellosis and it started to spread even at Librazhd, Elbasan, Diber, Kukes, and Tropoje.

Just north-western areas of the country is still affected by brucellosis. But what is more dramatic for specialists, is the fact that now brucellosis is found in significant numbers not only in animals, but also seriously endangering the health of people.

Currently the most problematik issue for our country is brucellosis in the livestoc caused by *B.militensis*

For the investigation of this infection in our country is used widely vaccination, according to the recommendations and guidelines of IKV is used in intrapalpebral ways with a double inoculation which reached a high degree of detection to the affected animals.

What we talked above shows that in the first period of the 90's years, the infection reached the peak of its spreading in years 1960 – 1965.

Thanks to the measures that were taken the infection was reduced until in 1987 the country was considered by healthfull by this infection. In this period was used successfully in practice brucelinization, elimination of positive leaders, where an important role played also the use of vaccine. This vaccine was used in a wide scale after 60's years and its combination with the investigation gave obvious results. In 1988 Albania was pronounced not to be under the risk of brucellosis.

But after the changes of the 1990s there was a recurrence and a fast increase of the brucelar infection because during this period the technical structure of domination of this disease was broken like:

- Economical and political changes in our country.
- Controlled movement of livestock within and abroad the country , especially with Greece and Macedonia.
- Incomplete implementation of sanitary and quarantine rules.
- Low technical and cultural level of farmers.

- Method of breeding livestock.
- Inability to conduct research funding in the total for the livestock infection.
- Timely elimination of animals that result positive in different diagnostic tests and use of specific prophylaxis in all ruminants.

- Organization of poor veterinary service.
- Lack of control products and livestock derivatives.

For these reasons in terms of epidemiology, infection brucellar is a social danger, as the number of people affected by brucellosis increases more and more.

Most spreaded from brucellas in world and in our country is *Brucella melitensis*.

Even in the Southeast Region of Albania for the last years (years 1999-2009 for which we talk in our study), brucellosis has been one of the most problematic infectious diseases for the region of Korca.

### **The object and purpose of the study.**

**Our study is subject to:** Brucellas that have circulated in the region of Korca for years 1999-2009.

For the fact that this disease is really important as in economic and in health too, in this study we will analyze: the dynamics of the spread of brucellas in the southeastern region of Albania.

The purpose of this study is:

Review of brucellosis spread in Korca region for the years 1999 to 2009 obtained in the study.

- The consequences of infection of brucellosis in human health.
- Distribution of brucellosis in the region of Korca according to sex.
- Distribution town-village.
- Age groups most affected.
- hygienic-sanitary precautions for the elimination of brucellosis in the future.
- In epidemiological aspects we will study:
- Definition of cases of disease
- Identify the age, sex, profession, as an occupational disease known as brucellosis
- Its seasonal character.

### **General characteristics:**

#### **Brucellas are:**

1-2 micron size length and width of 0.3-0.5 micron, gram negative, does not form spores, cocce, fixed, lonely, they can forms short strains.

#### **Characteristics of growth.**

**Brucellas:** They are aerobic, Optimal growth temperature is 36-38°C, take place in pH=7, growth is stimulated by the addition of 5-10% normal serum, growth demands tiamin, biotin, and nikotinamid. Often they require additional CO<sub>2</sub> into the atmosphere, they are considered as slowly growing, it can also happen the transitin from S

forms to R forms which are known as avirulents.

### **But what is brucellosis?**

Brucellosis is an infective disease caused by bacteria of the genus *Brucella*. People become infected by contact with animals and animal foods already contaminated from these bacteria. There are known cases of human infection from person to person.

### **How common is brucellosis?**

In developed countries, brucellosis is not very developed, but it may be more common in developing countries where is introduced even our country, where animal diseases are not yet reduced.

### **Where do we usually find brucellosis?**

Brucellosis is found everywhere, but is most common in countries that do not have good standards and effective public health. High-risk countries are Portugal, Spain, southern France, southern Italy, Cyprus, Greece, Turkey, North Africa, Eastern Europe. The unpasteurized cheeses, often called "village cheese", exported from these regions can pose a particular risk.

### **MATERIAL AND METHOD.**

**Sampling.** Material for bacteriological examination is obtained by the patient with brucellosis. Usually 5-7 ml of blood from his arm venis is taken, which is brought in small sterile bottle in the laboratory. Patient's blood is spinnered in the laboratory and we issue his serume. During the years 1999-2009 taken in study in the Southeastern Region of Albania, mainly in Korca region, were isolated and identified 1698 cases of brucellosis in infected people and carriers too. Brucellosis were identified by the agglutination test on glass, and A. Wright test as well. Both methods are used simultaneously to produce more accurate results. We take 2 X 2.5 ml serume with an automatic pipette from the serume bottle, which are later dropped in a lama divided in to parts. Later on the dropped serum is added antigen from *Brucella melitensis* or rose Bengal.

The serum of the patient who is suspected of brucellosis is well mixed with the antigen for a few seconds and we made observations with the naked eye, carefully, pumping the lama. We observe if there is aglutinacion or not. If there is aglutinacion then the result is positive and when it is missing the result is negative. Analysis is carried out in room temperature, 22-27°C and the result is seen after 5 min. This method is faster, but not the best. Testing of the agglutination test tube, A. Wright, has become a more accurate result by determining the agglutination titrin in serum of patients.

While the ten test tube serves to control the antigen, where not diluted serum is added. In all test tube with the serum diluted we add 0.25 ml antigen. Antigens are product

of Hygiene Institute of Tirana. Later the test tubes are incubated in thermostat temperature 37°C for 24 hours. In those cases where antibodies are present agglutination occurs and we deal with a positive reaction.

### RESULTS AND DISCUSSION OF DATA.

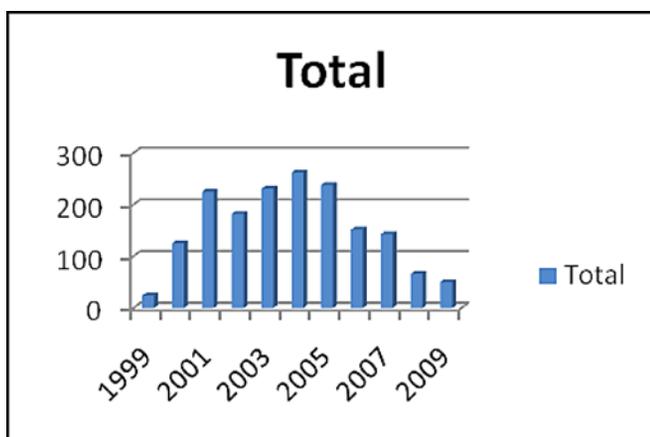
During the years 1999-2009 taken in study in the Southeastern Region of Albania, mainly in Korca region, were isolated and identified 1698 cases of brucellosis in infected people and carriers too. The number of adults results from low interest of farmers to respect the hygienic-sanitary regulations in handling the infected animals. Another reason is the use of derivatives products and free food products and processing standards such as milk, cheese etc. Not only production but also the hygienic-

sanitary conditions of storage, packing, trade continue to be controlled and unlicensed. Referring to the number of the infected people and to the fact that this disease is spread even to the town's inhabitants, including ages under 14 years old, causes the spreading of this bacterial, present and problematic infection for the population should be appreciated. From the spread of this disease to the people in the cities and to children in small ages, one of the principal factors in brucella infection result to be food products, primary milk and his sub-products. After 1990 years, of the Farming denationalized, farming products sale was and is going to be out of sanitarian hygienic standards and from responsible institutions is often unchecked. In the table no. 1 we see the dynamics of the spread of brucellosis in Korca region received over the years in our study and by months.

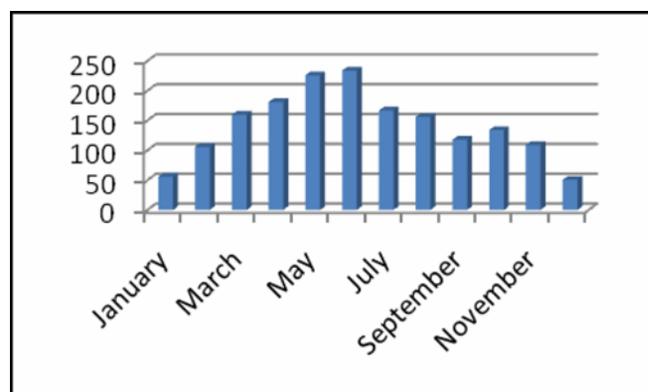
**Table 1.** Dynamic of *Brucella melitensis* isolated in 1999-2010 years in range of Korca.

Years	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.
1999	1	0	0	5	3	4	4	3	1	1	2	0
2000	2	1	2	2	10	15	9	25	22	23	14	0
2001	2	5	9	7	21	32	27	20	15	42	36	9
2002	6	9	13	27	23	43	9	15	9	13	8	7
2003	8	18	27	27	32	30	30	13	14	12	12	8
2004	9	19	32	28	35	45	30	24	13	9	8	10
2005	11	14	18	43	44	25	27	16	18	6	9	7
2006	7	14	17	16	15	10	14	18	16	12	6	7
2007	8	19	29	16	25	17	6	3	6	6	6	2
2008	1	6	8	10	14	6	2	11	2	1	5	0
2009	1	1	5	0	4	7	9	8	2	9	3	1

**Graphic 1.** Dynamic of *Brucella melitensis* isolated in 1999-2010 years in range of Korca.



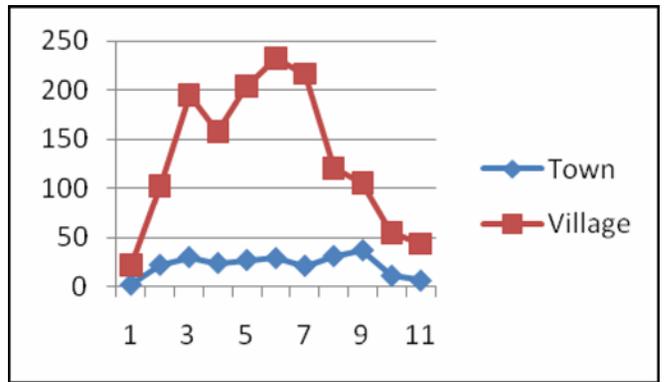
**Graphic 2.** Dynamic of *Brucella melitensis* isolated in months in 1999-2010 years in range of Korca.



**Table 2.** Brucella melitensis in town and village in 1999-2010 years in range of Korca.

Years	Town	Village	Total
1999	2	22	24
2000	22	103	125
2001	30	195	225
2002	24	158	182
2003	27	204	231
2004	29	233	262
2005	21	217	238
2006	31	121	152
2007	37	106	143
2008	11	55	66
2009	6	44	50
<b>Total</b>	<b>240</b>	<b>1458</b>	<b>1698</b>

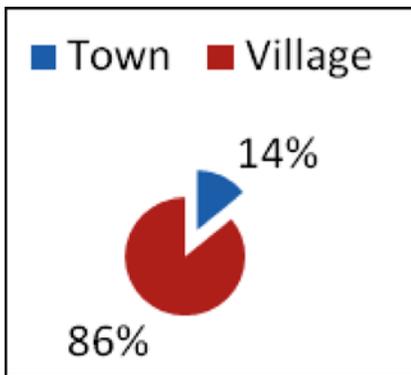
**Graphic 3.** Brucella melitensis in town and village in 1999-2010 years in range of Korca.



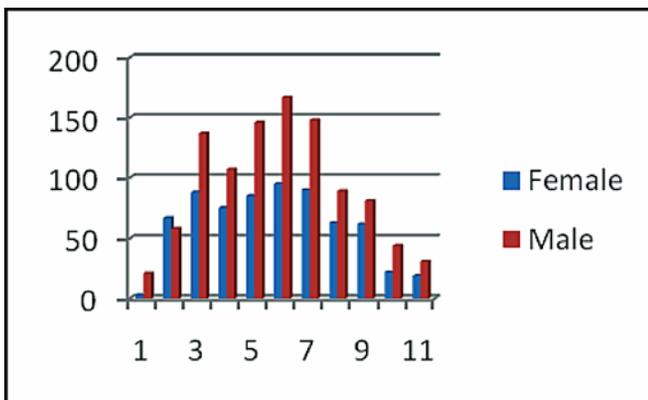
**Table 3.** Brucella melitensis in female and male in 1999-2010 years in range of Korca.

Years	Female	Male	Total
1999	3	21	24
2000	67	58	125
2001	88	137	225
2002	75	107	182
2003	85	146	231
2004	95	167	262
2005	90	148	238
2006	63	89	152
2007	62	81	143
2008	22	44	66
2009	19	31	50
<b>Total</b>	<b>669</b>	<b>1029</b>	<b>1698</b>

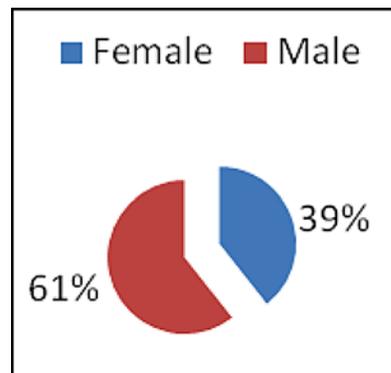
**Graphic 4.** Brucella melitensis in town and village in 1999-2010 years in range of Korca.



**Graphic 5.** Brucella melitensis in female and male in 1999-2010 years in range of Korca.



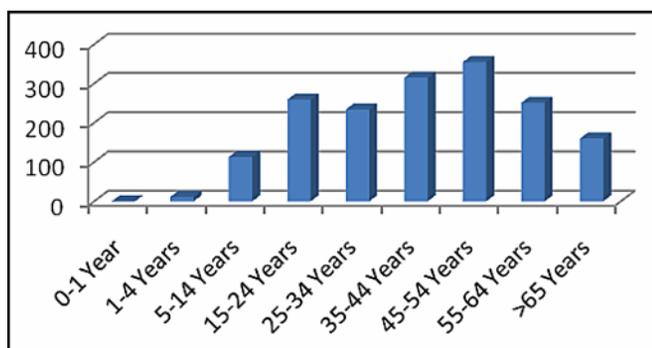
**Graphic 6.** Brucella melitensis in female and male in % in 1999-2010 years in range of Korca.



**Table 4.** Brucella melitensis in age groups in 1999-2010 years in range of Korca.

Years	0-1 Year	1-4 Years	5-14 Years	15-24 Years	25-34 Years	35-44 Years	45-54 Years	55-64 Years	>65 Years	Total
1999	0	0	0	5	4	4	6	4	1	24
2000	0	0	11	23	24	25	20	14	8	125
2001	0	1	17	32	31	42	50	29	23	225
2002	0	0	12	21	24	40	35	33	17	182
2003	0	1	14	36	41	29	57	29	24	231
2004	0	3	19	45	26	51	47	44	27	262
2005	0	2	13	40	25	47	55	29	27	238
2006	0	1	11	25	20	25	38	21	11	152
2007	0	1	7	16	22	31	23	32	11	143
2008	0	0	6	9	9	12	14	9	7	66
2009	0	2	3	7	8	9	10	7	4	50
<b>Total</b>	<b>0</b>	<b>11</b>	<b>113</b>	<b>259</b>	<b>234</b>	<b>315</b>	<b>355</b>	<b>251</b>	<b>160</b>	<b>1698</b>

**Graphic 7.** Brucella melitensis in age groups in 1999-2010 years in range of Korca.



### CONCLUSIONS

- During the years 1999-2009 taken in study in Korca region, were identified 1698 cases of brucellosis in infected people and carriers too.
- The data shows that brucellosis is a perennial reach, with a high increase in number for the months March up to October.
- Of all the 1698 cases, 240 are in town and 1458 in village, or 14% in city and 86% in the village.
- According to the gender, of all 1698 cases with

brucellosis, 669 were women and 1029 men, expressed in percentage, 39% female and 61% male.

- As for age groups we notice that there are cases in the first years, until above 65 years, mostly we noticed a high percentage in the age group of 15-65 years.
- These results show that brucellosis is not only an illness, but mismanagement of livestock products and by-products and their bad trading makes this disease lies in the city, and women is not active at work.

### RECOMMENDATIONS.

- Maintaining the low figures of the incidence and prevalence of brucellosis.
- Continue to survey and cull the cattle in a timely manner.
- Vaccination of heads of cattle as a necessity.
- Laboratory and diagnostic quality in other ways than those used so far.
- Inter-sectional interaction in prevention, control and eradication of brucellosis.
- Better awareness of the community.
- Preparation of policies, programs and clear technical and organizational measures, best for effective prevention and combating brucellosis for the termination of the epidemic process.

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