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PRODUCTION AND EVALUATION OF TOXOPLASMA ERYTHROCYTES DIAGNOSTICUMS

Abstract. Reasons of the prevalence of toxoplasma depending on spread of them in animals' tissues and cells are given in this article. Studies of toxoplasma show that they cause huge economic damage in livestock. During the testing of the purity of the antigens for obtainment of antigenic ED of toxoplasma in RHGR there were used large spread of agents of infectious diseases, parasitic diseases and immune serum against the owner of the parasite (white mouse).

In order to test the sensitivity of Toxoplasma antigen erectile dysfunction there were used a series of blood serum obtained from various animals. As a result of all KGAR blood serum of animals have shown a positive result. Normal serum of the same animals on KGAR with Toxoplasma antigen with ED have all shown negative results.

During the test the purity of the obtained ED antigen Toxoplasma cell-bound immune serum were used against widespread in KGAR - infectious, invasive and parasitic diseases and parasites from the owner (white mice).

For comparative studies of antigenic ED of toxoplasma it was taken ED produced by standard antigens used in component binding reaction and RHGR was used.

Keywords: toxoplasma, invasive, infection, antigen, erythrocytes.

Toxoplasma fraction for refined by immunosorbents is used to receive toxoplasma antigenic erythrocyte diagnosticums (ED).

Approval of the antigen in red blood cells were used such chemical substances: tannin ("tan"), chromium chloride ("chch"), rïvol ("rive"), amidol ("amide") and aldehyde glyutar ("GLA").

Approval of red blood cells by antigen rivanol (Şamardïn Karalnik, 1978).

2.5% of the amount of red blood cells mixed with 1 dose of antigen, which is added to a solution of 1 dose 0.02% rivanol. After the mixture is thoroughly mixed for 120 minutes at 45^0C to water bath. After that the red blood cells are triple rinsed off with 0.07% saline with gelatin.

0.5% of the diagnosticums is prepared by washed erythrocytes sediment. Approval of red blood cells by antigen- chromium chloride (Şamardïn Karalnik, 1978).

1 dose of 20% of the red blood cells is mixed with 5 dose antigen, 5 dose of 0.42% chromium chloride is added to a solution after thoroughly shaking the mixture is stayed for 5-6 minutes at 18-20^0C. Then erythrocytes are flushed three times with 0.05% normal rabbit serum (NRS) saline.

0.5% diagnosticums is prepared by erythrocytes sediment.

Approval of red blood cells by antigen amidol (Kuzmin, Karalnik, 1985).

2 dose of 20% of red blood cells is mixed with 1 dose of antigen, 0.2 dose of 0,41-0,43% amidol solution is added. After the mixture is thoroughly shaked, erythrocytes are flushed three times with 0.05% normal rabbit serum (NRS) saline.

0.5% diagnosticums is prepared by erythrocytes sediment.

Approval of red blood cells by antigen glyutar aldehyde (Shamardin, Karalnik, 1981).

1 dose of 10% of red blood cells is mixed with 1 dose of antigen, 0.2 dose of 2.5% glyutar aldehyde is added. After the mixture is thoroughly beaten for 120 minutes at 54-55^0C in water bath. Then erythrocytes are flushed with 0.05% normal rabbit serum (NRS) saline.

0.5% diagnosticums is prepared by erythrocytes sediment.

Approval of red blood cells by antigen tannin (Voyden, 1951).

1 dose of 0.05% erythrocytes is mixed with 1 dose of 5% tannin solution. Well-beaten red blood cells are stayed at 37^{0}C for 15 minutes in water bath. After that the red blood cells are flushed with saline twice. Tannin-contained 1 dose of 5% erythrocytes is mixed with 1 dose of antigen. After the mixture is thoroughly shaked for 120 minutes at 45^{0}C is kept in the water bath. Then erythrocytes are flushed with 0.05% normal rabbit serum (NRS) saline three time.

0.5% diagnosticums is prepared by erythrocytes sediment.

The determination of toxoplasma antigen optimal size.

During the approval of toxoplasma antigen with of red blood cells for ED-s production it is need to find the optimal size. To do this, several antigen solutions are prepared in 1:1, 1:2, 1:4, 1:8, 1:16, etc. The ED-s sensitivity is tested by approval of red blood cells with these solutions. Studies show that the minimum amount of antigen is used for ED-s obtained by rivanol (Table 1). During amidol, glyutar aldehydes, chromium chloride methods the antigen optimal size is taken from 1:2 solutions, tannin shows 1:4, and rivanol 1: 8.

Table 1 – The determination of toxoplasma antigen optimal size ED preparation

The use of substances	*Antigen solution*						
	1:1	1:2	1:4	1:8	1:16	1:32	1:64
Tannin	–	1:400	1:3200	1:800	1:200	–	–
Glyutar aldehyde	1:200	1:800	1:100	–	–	–	–
Chromium chloride	1:100	1:800	1:100	–	–	–	–
Amidol	–	1:800	1:200	–	–	–	–
Rivanol	–	1:400	1:800	1:1280	1:1600	1:400	–
"–" – undesirable reaction.							

During the studies of ED antigenic sensitivity of toxoplasma and self-features were used homologous toxoplasma blood serums and heterogeneous: beznoitic, sarkosporodic as well as widespread infection and invasion of aggressions against: tuberculosis, brucellosis, tripanosoma, echinococcus blood serum. In addition, to determine antigen absence in mixture of parasite antigen mass of white mouse (the owner of the parasite) was used the immune serum.

During study of ED antigenic sensitivity of toxoplasma and self-features was used reverse heamoglyutination reaction (RHGR) (Table 2).

During studies of EDs in RHGR by different methods of toxoplasma antigen showed the sensitivity is following ED (xp), ED (glu) and ED (amide) – in 1: 800, ED (tan) – 1: 3200, and ED (riv) – 1: 12800. ED antigenic sensitivity of toxoplasma by rivonol method was found to be 4-8 times more than the others. ED-s "xp", "glu" and "amide" methods show low quality.

Table 2 – Results of studies of ED antigenic sensitivity of toxoplasma and self-features by reverse heamoglyutination reaction (RHGR)

Immune serum	Erythrocyte diagnosticums				
	ED	ED-xp	ED-glu	ED-riv	ED-amide
Toxoplasmic	1:3200	1:800	1:800	1:12800	1:800
Benzoitic	–	1:50	1:50	–	1:50
Sarkosporodic	–	1:50	1:50	–	1:50
Tuberculosic	–	–	–	–	–
Brucellosic	–	–	–	–	–
tripanosomic	–	–	–	–	–
echinococcus	–	–	–	–	–
Against the owner of the parasite antigen	–	–	–	–	–
Normal serum	–	–	–	–	–

The accumulated results of the research methods of developing antigenic ED of toxoplasma among tested methods show that antigen approval by rivanol is effective. Sensitivity of toxoplasma and self-features was higher during using of rivonol method. At the same time, minimum size of toxoplasma antigen was obtained during using this method.

Thus the most effective method for antigenic ED of toxoplasma is approval toxoplasma antigen to formalin-docked red blood cells by rivanol using. Obtained antigenic ED of toxoplasma by this method shows higher self-features and sensitivity compare to other methods, and sensitivity was found to be 2-4 times more.

Further, to study epizootic and environmental properties of toxoplasma there was used rivanol method for scientific work to get erythrocyte diagnosticums. More than 100 thousand dosed antigenic ED of toxoplasma were developed by this method in parasitology laboratory and used in the production.

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ПРОИЗВОДСТВО И ОЦЕНКА ТОКСОПЛАЗМ ЭРИТРОЦИТАХ ДИАГНОСТИКУМЫ

Аннотация. Причины распространенности токсоплазм в зависимости от распространения их в животных тканях и клетках приводится в этой статье. Исследования показывают, что токсоплазмы они причиняют огромный экономический ущерб в животноводстве. Во время тестирования чистоты антигенов антигенной получением ЭД токсоплазмы в КГАР-использовали большое распространение возбудителей инфекционных заболеваний, паразитарных заболеваний и иммунной сыворотки против хозяина паразита (белая мышь). Для того, чтобы проверить антигенную чувствительность Токсоплазмы к эректильной дисфункции, были использованы серии сыворотки крови полученных от разных животных. По результатам КГАР все сыворотки крови животных показали положительный результат. Нормальная сыворотка этих же животных на КГАР при антигенной токсоплазме при ЭД все показали отрицательный результат.

Во время испытании чистоты полученных ЭД антигенной токсоплазмы были использованы иммуные сыворотки крови против широко распространенных в КГАР- возбудителей инфекционных, инвазивных и паразитарных заболеваний и от владельцов паразитов (белые мыши).

Для получения сравнительных исследований антигенной ЭД токсоплазмы был взят ЭД, полученный с помощью стандартных антигенов, используемых в реакции связывания компонентов и КГАР- КБР использовали.

Ключевые слова: токсоплазм, инвазивная, инфекция, антиген, эритроцитах.

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ТОКСОПЛАЗМАНЫҢ ЭРИТРОЦИТТІ ДИАГНОСТИКУМЫН АЛУ ЖӘНЕ ӨНДІРІСТЕ БАҒАЛАУ

Аннотация. Мақалада токсоплазманың кең таралуы оның жануарлар ағзасындағы барлық ұлпалар мен жасушаларында кездесіп, өмір сүре алуында. Токсоплазманы зерттеу, оның мал шаруашылығына орасан зор экономикалық зиян келтіретінің анықтады. Токсоплазманың антигендік ЭД алу үшін пайдаланылған антигендер тазалығын тексеру барысында КГАР-на кең көлемде тараған инфекциялық, инвазиялық аурулар қозғыштарына және паразит иесіне (ақ тышқан) қарсы алынған иммунды қан сарысулары пайдаланылды.

Токсоплазманың антигендік ЭД сезімталдығы тексеру үшін токсоплазмалық қан сарысуының әртүрлі жануарлардан алынған сериялары пайдаланылған еді. КГАР нәтижесінде барлық жануарлар қан сарысуы оң көрсеткіш көрсетті. Осы жануарлардың қалыпты қан сарысулары КГАР-да токсоплазманың антигендік ЭД-мен түгел теріс көрсеткіш көрсетті.

Әрбір дайындалған эритроцитті диагностикум сериясының сезімталдық және өзіне тәндік қасиеттері КГАР қою арқылы тексерілдігі және токсоплазманың антигендік ЭД алу үшін пайдаланылған антигендер тазалығын тексеру барысында КГАР-на кең көлемде тараған инфекциялық, инвазиялық аурулар қозғыштарына және паразит иесіне (ақ тышқан) қарсы алынған иммунды қан сарысулары пайдаланылды.

Токсоплазманың антигендік ЭД салыстырмалы тексеру мақсатында компонентті байлау реакциясына қолданылатын стандартты антигенмен жасалынған ЭД алынды және КГАР мен қатар КБР қойылатыны туралын айтылған.

Тірек сөздер: токсоплазма, инвазиялық, жұқпалы, антиген, эритроцит.