Ministry of Education and Science of Ukraine
Sumy National Agrarian University
Faculty of Veterinary Medicine
Department of Therapy, Pharmacology, Clinical Diagnostics and Chemistry

Work program (syllabus) of the educational component
Obligatory

VETERINARY TOXICOLOGY

Implemented within the educational program
21 VETERINARY MEDICINE
(name)
in specialty 211 VETERINARY MEDICINE
(code, name)

at the second (master's) level of higher education

Sumy - 2022

Author: ____________ **Dolbanosova RV, Ph.D., associate Professor**

Module syllabus agreed at the "Veterinary Toxicology" Department meeting Department of Therapy, Pharmacology, Clinical Diagnostics and Chemistry	Minutes N 15 08/06/ 2021
	Head of Therapy, Pharmacology, Clinical Diagnostics and Chemistry Department ____________ (L.G.Ulko)

Approved by:

Guarantor of the Academic program ____________ (L G Ulko)

Dean of the Faculty ____________ (O L Nethiporenko)

Syllabus review (attached) is provided by : ____________ (Zou B A)

____________ (O.S.Kysterna)

Representative of the Department of Education Quality assurance, licensing and accreditation ____________ ( )

Registered in electronic data base 05 02 2021

Information on the revision of the work program (syllabus):

Academic year in which changes are made	The number of the application to the work program with a description of the changes	The changes have been reviewed and approved		
		Date and number of the minutes of the meeting of the department	Head of Department	Guarantor of the educational program

1. GENERAL INFORMATION ABOUT THE EDUCATIONAL COMPONENT

	Name OK	Veterinary toxicology		
	Faculty / department	Veterinary medicine Therapy, pharmacology, clinical diagnosis and chemistry		
	Status OK	Obligatory		
	Program / Specialty (programs), the component of which is OK for (to be filled in for mandatory OK)	21 Veterinary medicine 211 veterinary medicine		
1.	OK can be suggested for (to be *filled in for selective OK)*			
2.	NRC level	7		
3.	Semester and duration of study	7		
4.	Number of ECTS credits	3		
5.	The total number of hours and their distribution	Contact work (classes)		Individual work
		Lectures 16	Laboratory 30	44
6.	Language of instruction	English		
7.	Teacher / Coordinator of the educational component	Dolbanosova RV		
11.1	Contact Information	https://vet.snau.edu.ua/kafedri/kafedra-terapi%d1%97-farmakologi%d1%97-klinichno%d1%97-diagnostiki-ta-ximi%d1%97/sklad-kafedri/dolbanosova- rimma-valentinivna-k-vet-n-docent / e- mail : rimma19-82@ukr.net		
8.	General description of the educational component	The discipline "Veterinary Toxicology" provides students with theoretical knowledge and practical skills for the prevention of adverse effects of toxic substances on animals, diagnosis of animal poisoning, modern methods of treatment of animals for their poisoning.		
9.	The purpose of the educational component	To give students theoretical knowledge and practical skills on: a) safe and effective use of animal protection products; b) methods to prevent the negative impact of toxic substances on the farmed animals in including . birds, fish and bees; c) diagnosis of poisoning of animals with pesticides, feed additives, poisonous plants, mycotoxins. d) modern methods of treating animals for their poisoning; e) veterinary and sanitary examination in case of animal poisoning.		
10.	Prerequisites for studying OK, the relationship with other educational components of OP	1. The educational component is based on: foreign and Latin language, physiology, biochemistry, clinical diagnostics, veterinary pharmacology, medicinal plants. 2. The educational component is ancillary to obstetrics and gynecology, animal reproduction, internal non-communicable diseases , infectious diseases , pathological anatomy .		
11.	The policy of academic integrity	It is expected that applicants for higher education will adhere to the principles of academic integrity, aware of the consequences of its violation, as defined by the Code of Academic Integrity of Sumy National Agrarian University .		

2. LEARNING OUTCOMES FOR THE EDUCATIONAL COMPONENT AND THEIR RELATIONSHIP WITH SOFTWARE LEARNING RESULTS

OK learning outcomes: After studying the educational component, the student is expected to be able to… »	Program learning outcomes to be achieved by the OK (indicate the number according to the numbering given in the OP)								As estimated by RND
	PLO 2	PLO 3	PLO 4	PLO 5	PLO 7	PLO 10	PLO 15	PLO 18	
DRN 1. Use knowledge of the parameters of toxicometry (toxicodynamics and toxicokinetics) of toxic substances in the appointment of treatment and prevention . Take samples of pathological material, feed and water for chemical and toxicological studies. Detect and identify poisonous plants (perform botanical analysis) Prepare supporting documentation.		+	+	+			+	+	Simulation exercises. Work in groups with research material . Preparation of accompanying documents.
DRN 2. Use methods of isolation of toxic substances patmaterialu and feed through to know the primary s reactions interaction poison of tissue, the path along flow toxic to animals, absorption, distribution and deposition , the main stages of the biotransformation of poisons and ways of their elimination			+	+					Work on situational tasks

DRN 3 Use knowledge of the features of etiopathogenesis , symptoms and course of toxicoinfections for the appointment of etiotropic , pathogenetic, symptomatic and replacement therapy Be able to choose drugs for poisoning		+	+	+		+			Simulation exercises Solving situational problems Preparation of presentations on the topic
DRN4. Differentiate fungi - producers of mycotoxins on the basis of organoleptic and laboratory methods of feed quality assessment.		+			+				Multiple choice tests
DRN5. Analyze the results obtained after the appointment of treatment and prevention. Use the acquired knowledge for further therapeutic activities		+	+		+	+			Paperwork. In solving situational problems

3. CONTENT OF THE EDUCATIONAL COMPONENT (PROGRAM OF THE COURSE)

Topic. List of issues to be addressed within the topic	Distribution within the general time budget			Recommended Books
	Classroom work		Himself. slave.	
	Luke	Lab. with.		
Topic 1. Introduction. Definition, content, tasks and objects of veterinary toxicology. 1. The concept of poisons and poisoning. 2. Toxicometry parameters of toxic substances. 3. Classification of toxic substances. 4. General scheme and procedure of HTD. 5. Safety and labor protection when working in a chemical and toxicological laboratory. 6. Methods of detecting toxic substances in water, feed, parenchymal organs	2	4	4	1. Veterinary toxicology: textbook . / Khmelnytsky GO, Malinin OO, Kutsan OT, Dukhnytsky VB - K.: Аграрна освіта, 2012. - 352 c. 2 . Malinin OA Veterinary toxicology / Malinin OA, Khmelnitsky GA, Kutsan AT - Korsun- Shevchenkovsky : PE Maidachenko . 2002 - 464 p. 3 . Zhulenko VN Veterinary toxicology / Zhulenko VN, Rabinovich MI, Talanov GA - M .: Colossus. 2001 - 283 p. 4.Dolbanosova RV Ulko LG, Kysterna OS Methodical recommendations for the implementation of laboratory and practical classes and independent work of the students of the Faculty of Veterinary Medicine «The basics of veterinary toxicology». Sumy, 2019.- 42 r.
Topic 2. The essence of the effects	2	4	4	1. Veterinary

of poisons on the body and the environment. 1. Toxicodynamics and toxicokinetics . 2. Diagnosis and prevention of poisoning. 3. Treatment of animals for poisoning 4. Toxicology of herbicides.				toxicology : a textbook for universities / L. Yu. Ananyev [et al .] ; Under the editors L. A. Smyrnovoy . - 2nd ed ., Reworked . and ext . - Moscow : Yurayt Publishing House , 2020. - 299 p 2. Leight A.O. General toxicology . SPb .: ELBI - SPb., - 2006. S.224. 3. Veterinary toxicology http://vetoxi.ru/
Topic 3. Toxicology of organochlorine and organophosphorus compounds . 1. Toxicological characteristics of organophosphorus compounds (FOS). 2. Toxicological characteristics of organochlorine compounds (HOS).	2	2	6	1. Argunov MN Veterynarnaya toxicology with the basics of ecology : Uchebnoe posobye . - LNG: Lan Publishing House , 2007. - 416 p. 2. Malinin OA, Khmelnitsky GA, Kutsan AT Veterinary toxicology . K., - 2002. - 463 p. 3. Rouder Dzh.D . Veterinary toxicology / Per. with English . M. Stepkin . - M .: « Аквариум-Принт », 2008. - 416 с.
Topic 5 . Toxicological characteristics of urea, phenol, dipyridylium and fluorinated pesticides. 1. Toxicological characterization of derivatives of carbamic acids and fenoksykyslot .		2	6	1. Argunov MN Veterynarnaya toxicology with the basics of ecology : Uchebnoe posobye . - LNG: Lan Publishing House , 2007. - 416 p. 2. Malinin OA, Khmelnitsky GA, Kutsan AT Veterinary toxicology . K., - 2002. - 463 p. 3. Rouder Dzh.D . Veterinary toxicology / Per. with English . M. Stepkin . - M .: « Аквариум-Принт », 2008. - 416 с.

				4. Musienko VM, Ulko LG, Musienko OV, Kisterna OS Methodical instructions course of lectures on discipline "Veterinary toxicology". Sumy: Sumy National Agrarian University, 2016- 36 p. 5. Musienko VM, Ulko LG, Musienko OV, Kisterna OS Methodical instructions on laboratory - practical employment on discipline "Veterinary toxicology". Sumy: Sumy National Agrarian University, 2016, - 24 p.
Topic 7 . Toxicological characteristics of compounds containing heavy metals. 1. Mercury toxicology 2. Lead toxicology 3. Toxicology of thallium 4. Arsenic poisoning	2	4	6	1. Zhulenkov VN , Golubitskaya AV Determination of arsenic-containing substances in organs and tissues of animals // Actual problems of livestock intensification . - Troitsk - Chelyabinsk , 1992. - P. 94 2. Zhulenko VN , Kanyuka AI Antidotes for animal poisoning by compounds of heavy metals and arsenic // Veterinary , № 6. - M., 1992. - P. 52. 3. КанюкаА.И . Pharmacology of unithiol and calcium thetacin : Abstract . diss .– L .: LVI, 1991. – P.40. 4. Malinin OA, Khmelnitsky GA, Kutsan AT Veterinary toxicology . K., - 2002. - 463 p.
Topic 8 . Toxicology of zoocides of different groups. 1. Toxicological characteristics of synthetic pyrethroids , 2. Toxicological characteristics of zoocides	2	2	4	1. БерезовскийО.И . Toksykolohycheskaya sanitary evaluation of rodentytsydnыh funds IZ hruppыantykoahulyantov : Abstract . diss . - M., 1998.

and fluoride.				2. Malinin OA, Khmelnitsky GA, Kutsan AT Veterinary toxicology . K., - 2002. - 463 p. 3. Musienko VM, Ulko LG, Musienko OV, Kisterna OS Methodical instructions course of lectures on discipline "Veterinary toxicology". Sumy: Sumy National Agrarian University, 2016- 36 p. 4. Musienko VM, Ulko LG, Musienko OV, Kisterna OS Methodical instructions on laboratory - practical employment on discipline "Veterinary toxicology". Sumy: Sumy National Agrarian University, 2016, - 24 p.
Topic 9 . Toxicological characteristics of feed additives. 1. Chlorine and its compounds (table salt). 2. Toxicological characteristics of urea and ammonium salts. 3. Nitrate and nitrite poisoning		2	2	1. Veterinary toxicology: textbook . / Khmelnytsky GO, Malinin OO, Kutsan OT, Dukhnytsky VB - K.: Аграрна освіта, 2012. - 352 с. 2. Khmelnitsky GA Therapy of animals with poisoning : Handbook / GA Khmelnytsky - K .: Harvest. 1990 - 213 p. 3. Electronic training course: Veterinary Toxicology (http://vetmed.nauu.kiev.ua/course/view.php?id=41) 4. Drawn VI, Dakhno GP Nitrate and nitrite poisoning. Sumy 2009. - 18p.
Topic 10 . Phytotoxicosis . Toxicological characteristics of plants containing alkaloids. Toxicological characteristics of plants containing various glycosides groups, coumarins , oxalates,	4	4	6	1. Veterinary toxicology: textbook . / Khmelnytsky GO, Malinin OO, Kutsan OT, Dukhnytsky VB - K.: Аграрна освіта, 2012. - 352 с. 2. Ulko LG,

photosensitizers , essential oils.				Dolbanosova RV, Shkromada OI Kisterna OS Phytotoxicosis of animals. Educational and methodical recommendations for independent and individual work of students of the Faculty of Veterinary Medicine in the discipline "Veterinary Toxicology" Sumy, 2017, 43 p. 3. Pharmacology, toxicology and pharmacy in veterinary medicine http://www.nowa.cc/showthread.php?t=239096 4. Scientific and educational portal: Veterinary pharmacology and toxicology http://originweb.info/science/codes/16/160004.html
Topic 11 . Mycotoxicosis of animals. Fungi-producers of mycotoxins and their distribution. Influence of fungi and their metabolites on feed quality. Biological action of mycotoxins on animals. Classification of mycotoxicosis . Characteristics of aspergillosis and penicillin toxicosis . Characteristics of fusariotoxicosis . Mycotoxicosis of other groups.	2	6	6	1. Tremasov M.Ya. , Smetov PK Spontaneous mixed mycotoxicosis of animals // Veterinary medicine . – 1995. – №3. – p.20–22. 2. E-learning course: Veterinary Toxicology (http://vetmed.nauu.kiev.ua/course/view.php?id=41) 3. Veterinary pharmacology and toxicology (research center) http://ceninauku.ru/info/page_10474.htm 4. Prediction of in vitro clinical efficacy of enterosorbents against individual mycotoxins by biotesting using a plant test object [scientific and methodological recommendations] / L.G. Khmelnytsky, VB Dukhnytsky , MF Panko, GV Boyko, VD

				Ishchenko. - К .: НУБіП, 2011. - 30 с.
In just one year	**16**	**30**	**44**	90

4. METHODS OF TEACHING AND TEACHING

DRN	**Teaching methods** (work to be done by the teacher during classes , consultations)	**Number of hours**	**Teaching methods** (what types of educational activities the student must perform independently)	Number of hours
DRN 1. Use knowledge of the parameters of toxicometry (toxicodynamics and toxicokinetics) of toxic substances in the appointment of treatment and prevention. Take samples of pathological material, feed and water for chemical and toxicological studies. Detect and identify poisonous plants (perform botanical analysis) Prepare supporting documentation.	*Informative lecture* where students receive ready-made information that needs to be memorized , *lecture visualization* - demonstration materials, forms of visualization, which not only supplement verbal information, but also act as carriers of meaningful information. *Practical methods* - work with pathological material, food, water, plants. *Problematic* - disputes based on lecture materials. Using the MOODLE, ZOOM platform during a mixed form of learning.	10	*Extracurricular work* - reading literature on the topic, working with textbooks, manuals, materials on the Internet	8
DRN 2. Use methods of isolation of toxic substances from patmaterial and feed on the basis of knowledge of	*Practical methods* - to get acquainted with the methods of isolation of toxic substances from the material , feed and water. P	6	*Extracurricular work* - reading literature on the topic, watching videos, working with textbooks, manuals and	6

primary reactions of poison interaction with body tissues, ways of entering toxic substances into animals, absorption, distribution and deposition, main stages of biotransformation of poisons and ways of their removal	rovedennya research conditions and animal feed, fodder research in terms UNPK "vivarium" Official. Conducting a general examination of animals to identify clinical and subclinical stages of intoxication . *Problematic* - disputes over the received materials. Using the MOODLE, ZOOM platform during a mixed form of learning.		guidelines.	
DRN 3 Use knowledge of the features of etiopathogenesis , symptoms and course of toxicoinfections for the appointment of etiotropic , pathogenetic, symptomatic and replacement therapy Be able to choose drugs for poisoning	*Lecture visualization* - demonstration materials, forms of clarity, which not only supplement verbal information, but also act as carriers of meaningful information. L *ektsiya-press konferentsyiya* offering students a writing teacher to ask questions about topics that will be explored. For two or three minutes, students formulate questions to	1 0	*Extracurricular work* - Solving situational problems. Testing on the MOODLE platform	1 0

	involve students in the key moments of the course and systematization of knowledge , to determine the prospects for the development of the acquired content and pass them to the teacher . During the lecture, the teacher answers the questions . *Work with animals* , where the main clinical manifestations of animal intoxication are understood and differential diagnosis is performed. *Problematic* - disputes based on lecture materials. Using the MOODLE, ZOOM platform during a mixed form of learning.			
DRN4. Differentiate fungi - producers of mycotoxins on the basis of organoleptic and laboratory methods of feed quality assessment.	*Lecture visualization* - demonstration materials, forms of visualization, which not only complement the verbal information, but also act as carriers of meaningful information.	1 0	*Extracurricular work* - Reading material on the proposed topics. Watch videos with a theme , which are located on the MOODLE platform	1 0

	Problematic - disputes based on lecture materials. Using the MOODLE, ZOOM platform during a mixed form of learning.			
DRN5. Analyze the results obtained after the appointment of treatment and prevention. Use the acquired knowledge for further therapeutic activities	*Analytical method* - after the appointment of a protocol for the treatment of animal intoxications, an analysis of each prescribed drug and method of therapy is performed . *Q Republican konferentsyiya -C* tvoryuyetsya problematic situation that encourages students to seek solution, step by step to raising purposes. *Working with animals* to observe animals being treated. Using the MOODLE, ZOOM platform during a mixed form of learning.	10	*Extracurricular work* - acquaintance with the existing protocols of treatment of animals for intoxications. P idhotovka presentations and reports on the topic.	10

5. EVALUATION BY EDUCATIONAL COMPONENT

5.1. Summative assessment

5.1.1. To assess the expected learning outcomes provided in the 7th semester

№	Methods of summative evaluation	Points / Weight in the overall score	Date of compilation
1.	Thematic evaluation	10 points / 10 %	Up to 15 weeks
2.	Working with animals	10 points / 10 %	Up to 12 weeks
3.	Simulation exercises	10 points / 10%	Up to 14 weeks
4.	Preparation of accompanying documents and treatment protocols	15 points / 15%	Up to 14 weeks
5.	Presentations with reports	10 points / 10%	Up to 12 weeks
6.	Multiple choice tests	15 points / 15%	Week 8
7.	Exam	30 points / 30%	15 week

5.1.1. Evaluation criteria in the 5th semester

Component	**Unsatisfactorily**	**Satisfactorily**	**Okay**	**Perfectly**
Thematic evaluation	<3 points	4-6	7-9 points	10 points
	Task requirements not met	Most requirements are met, but some components are missing or insufficiently disclosed, there is no analysis of other approaches to the issue	All requirements of the task are fulfilled	All requirements of the task are fulfilled, creativity, thoughtfulness is shown, own solution of a problem is offered
Working with animals	<3 points	4-6	7-9 points	10 points
	Task requirements not met	Most of the requirements are met, but there are minor violations of the methods	The task is done correctly	All requirements of the task are fulfilled, creativity, thoughtfulness is shown, own solution of a problem is offered

Simulation exercises, drawing up protocols	<3 points	4-6	7-9 points	10 points
	Task requirements not met	Most requirements are met, but some components are missing or insufficiently disclosed, there is no analysis of other approaches to the issue	All requirements of the task are fulfilled, the situational task is solved completely, the report is made	All requirements of the task are fulfilled, creativity, thoughtfulness is shown, own solution of a problem is offered
Preparation of accompanying documents and treatment protocols	<5 points	5-10	11-13	14-15
	Task requirements not met	Most of the requirements are met, but there are minor violations of the rules	The task is done correctly	All requirements of the task are fulfilled, creativity, thoughtfulness is shown, own solution of a problem is offered
Preparation of presentations and reports	<3 points	4-6	7-9 points	10 points
	Task requirements not met	The presentation is prepared, but the report is not clear, not logical	All the requirements of the task are met, the report and the presentation meet the requirements	All requirements of the task are fulfilled, creativity, thoughtfulness is shown, own solution of a problem is offered
Testuvannya	<5 points	**6-11**	12-14	15
	Less than 5 correct answers	6-11 correct answers	12-14 correct answers	All correct answers
Exam	<15 points	15-20	21-26	27-30
	The issues of the exam ticket are not disclosed	2 questions are solved	3 questions are solved	Three issues are revealed and the own solution of the problem is offered

5.2. Formative assessment:

№	Elements of formative assessment	Date
1.	Oral interview after studying the topics	15 minutes at the end of the lesson at the end of the study of the topic
2.	Oral feedback from the teacher while working on situational tasks during classes	next lesson after learning a new topic
3.	Oral feedback from the teacher and students after the presentation of independent work	12-14 weeks

6. LEARNING RESOURCES (LITERATURE)

Basic

1. Veterinary toxicology: textbook . / Khmelnytsky GO, Malinin OO, Kutsan OT, Dukhnytsky VB - K.: Аграрна освіта, 2012. - 352 с.
2. Zhulenko VN , Golubitskaya AV Determination of arsenic-containing substances in the organs and tissues of animals // Actual problems of livestock intensification . - Troitsk - Chelyabinsk , 1992. - P. 94
3. Zhulenko VN , Kanyuka AI Antidotes for poisoning animals with compounds of heavy metals and arsenic // Veterinary , № 6. - M., 1992. - P. 52.
4. Malinin OA Veterinary toxicology / Malinin OA, Khmelnitsky GA, Kutsan AT - Korsun- Shevchenkovsky : PE Maidachenko . 2002 - 464 p.
5. Zhulenko VN Veterinary toxicology / Zhulenko VN, Rabinovich MI, Talanov GA - M .: Колос. 2001 - 283 p.
6. КанюкаА.И . Pharmacology of unithiol and calcium thetacin : Abstract . diss .– L .: LVI, 1991. – P.40.
7. Malinin OA, Khmelnitsky GA, Kutsan AT Veterinary toxicology . K., - 2002. - 463 p.
8. Argunov MN Veterynarnaya toxicology with the basics of ecology : Uchebnoe posobye . - LNG: Lan Publishing House , 2007. - 416 p.
9. Berezovsky OI Toksykolohycheskaya sanitary evaluation of rodentytsydnыh funds IZ hruppыantykoahulyantov : Abstract . diss . - M., 1998.

Auxiliary

1. Veterinary toxicology: textbook . / Khmelnytsky GO, Malinin OO, Kutsan OT, Dukhnytsky VB - K.: Аграрна освіта, 2012. - 352 с.
2. Veterinary toxicology : a textbook for universities / L. Yu. Ananyev [et al .] ; Under the editors L. A. Smyrnovoy . - 2nd ed ., Reworked . and ext . - Москва : Издательство Юрайт , 2020. - 299 с
3. Prediction of in vitro clinical efficacy of enterosorbents against individual mycotoxins by biotesting using a plant test object [scientific and methodological recommendations] / L.G. Khmelnytsky, VB Dukhnytsky , MF Panko, GV Boyko, VD Ishchenko. - K .: НУБіП, 2011. - 30 с.

4. Rouder Dzh.D . Veterinary toxicology / Per. with English . M. Stepkin . - M .: « Аквариум-Принт », 2008. - 416 c.
5. Tremasov M.Ya. , Smetov PK Spontaneous mixed mycotoxicosis of animals // Veterinary medicine . – 1995. – №3. – p.20–22.
6. Pharmacology, toxicology and pharmacy in veterinary medicine http://www.nowa.cc/showthread.php?t=239096
7. Khmelnitsky GA Therapy of animals with poisoning : Handbook / GA Khmelnytsky - K .: Harvest. 1990 - 213 p.

Information resources

1. Veterinary toxicology http://vetoxi.ru/
2. Veterinary pharmacology and toxicology (research center) http://ceninauku.ru/info/page_10474.htm
3. E-learning course: Veterinary Toxicology (http://vetmed.nauu.kiev.ua/course/view.php?id=41)
4. Leight A.O. General toxicology . SPb .: ELBI - SPb., - 2006. S.224.
5. Scientific and educational portal: Veterinary pharmacology and toxicology http://originweb.info/science/codes/16/160004.html

Methodical support

3. Dolbanosova RV Ulko LG, Kysterna OS Methodical recommendations for the implementation of laboratory and practical classes and independent work of the students of the Faculty of Veterinary Medicine « T he basics of veterinary toxicology » . Sumy, 2019 .- 42 r .
4. Musienko VM, Ulko LG, Musienko OV, Kisterna OS Methodical instructions course of lectures on discipline "Veterinary toxicology". Sumy: Sumy National Agrarian University, 2016- 36 p.
5. Musienko VM, Ulko LG, Musienko OV, Kisterna OS Methodical instructions on laboratory - practical employment on discipline "Veterinary toxicology". Sumy: Sumy National Agrarian University, 2016, - 24 p.
6. Risovany VI, Dakhno GP Nitrate and nitrite poisoning. Sumy 2009. - 18p.
7. Ulko LG, Dolbanosova RV, Shkromada OI Kisternaya OS Veterinary toxicology . Educational and methodical recommendations for independent and individual work of students of the Faculty of Veterinary Medicine on the subject " Veterinary Toxicology ". Sumy 2018 g ., P 52
8. Ulko LG, Dolbanosova RV, Shkromada OI Kisterna OS Phytotoxicosis of animals. Educational and methodical recommendations for independent and individual work of students of the Faculty of Veterinary Medicine in the discipline "Veterinary Toxicology" Sumy, 2017, 43 p.