

USE OF ANTIBIOTICS FOR ANIMALS IN VIETNAM

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Summary of antibiotics utilisation for animals

Total of products	Products of Vietnam		Imported drugs and materials into Vietnam		
	Total	Enterprises	Total	Manufacturers	Countries
5,870	4,522	86	1,348	149	32

Summary of pharmaceutical products utilisation for animals

- Pharmaceutical products using for animals include antibiotics, vitamin, anti-parasite with 70% antibiotics (4109 products). Antibiotic using in animal health for prevention and cure; in breeding as the growth stimulators.

11 main groups of antibiotic using in animals health :

- + β - Lactam(Peniciline, Amoxycilline, Cloxaciline, Cephalosporins,...)
- + Aminoglucozides (Apramycin, Gentamycin, Kanamycin, Neomycin, Spectinomycin, Streptomycin)
- + Macrolides (Erythromycin, Josamycin, Spiramycin, Tylosin).
- + Tetracyclin (Tetracyclin, Oxytetracyclin, Doxycyclin, Chlotetracyclin)
- +(Fluoro)quinolones(Flumequine, Enrofloxacin, Norfloxacin, Oxolinic acid, Marbofloxacin, Danofloxacin, Difloxacin...)
- + Phenicol(Florfenicol, Thiamphenicol)
- + Polymyxins(Colistin)
- + Pleuromutilins(Tiamulin)
- + Lincosamides(Lincomycin)
- + Sulfamid(Sulfachlorpiridazine, Sulfadiazine, Sulfadimethoxine,.....)
- + Diaminopyrimidine(Trimethoprim)

Main formulas

- Injection
- Oral solution

Ratio : 48%

- Oral powder: 36%
- Injectable powder, others: 16%

Antibiotics using in animals:

- To supply in food for stimulating the growth of animals following FDA's recommendation (USA)

List of chemicals, antibiotics banned on using in aquaculture (19 types)

Aristolochia spp and their products	Green Malachite (Xanh Malachite)
Chloramphenicol	Ipronidazole
Chloroform	Other Nitroimidazole
Chlorpromazine	Clenbuterol
Colchicine	Diethylstilbestrol (DES)
Dapsone	Glycopeptides
Dimetridazole	Trichlorfon (Dipterex)
Metronidazole	Gentian Violet (Crystal violet)
Nitrofurantoin (including Furazolidone)	Fluoroquinolones group (ban on production and business of aquatic products exporting in American market and north-American)
Ronidazole	

List of chemicals, antibiotics banned on using in animals health (13 types)

Chloramphenicol	Ciprofloxacin
Furazolidon and other products of Nitrofurans group	Ofloxacin
Dimetridazole (Another name: Emtryl)	Carbadox
Metronidazole	Olaquinox
Dipterex (Trichlorphon); DDVP	Bacitracin Zn
Eprofloxacin	Green Malachite (Xanh Malachite)
	Gentian Violet (Crystal violet)

List of chemicals, antibiotics limited to use in animals health (33 types)

Chemicals, antibiotics	Maximum limitation (MRL)(ppb)
Amoxicillin	50
Ampicillin	50
Benzylopenicillin	50
Cloxacillin	300
Dicloxacillin	300
Oxacillin	300
Oxolinic Acid	100
Colistin	150
Cypermethrin	50
Deltamethrin	10
Diflubenzuron	1000

List of chemicals, antibiotics limited to use in production and business of aquatic products (33 types)

Chemicals, antibiotics	Maximum limitation (MRL)(ppb)
Teflubenzuron	500
Emamectin	100
Erythromycine	200
Tilmicosin	50
Tylosin	100
Florfenicol	1000
Lincomycine	100
Neomycine	500
Paromomycin	500
Spectinomycin	300
Chlortetracycline	100

List of chemicals, antibiotics limited to use in production and business of aquatic products (33 types)

Chemicals, antibiotics	Maximum limitation (MRL)(ppb)
Oxytetracycline	100
Tetracycline	100
Sulfonamide (các loại)	100
Trimethoprim	50
Ormetoprim	50
Tricainemethanesulfonate	15-330
Danofloxacin	100
Difloxacin	300
Enrofloxacin + Ciprofloxacin	100
Sarafloxacin	30
Flumequine	600

List of chemicals, antibiotic limited to use in animals health (13 types)

Chemicals, antibiotics	Chemicals, antibiotics
Spiramycin	Nicarbazin
Avoparcin	Flavophospholipol
Virginiamycin	Salinomycin
Meticlorpidol	Avilamycin
Meticlorpidol/Methylbenzoquate	Monensin
Amprolium (dạng bột)	Tylosin phosphate
Amprolium/ethopate	

List of chemicals, antibiotics banned on using in breeding (18 types)

Chemicals, antibiotics	Chemicals, antibiotics
CARBUTEROL	METHYL-TESTOSTERONE
CIMATEROL	METRONIDAZOLE
CLENBUTEROL	19 NOR-TESTOSTERONE
CHLORAMPHENICOL	RACTOPAMINE
DIETHYLSTILBESTROL (DES)	SALBUTAMOL
DIMETRIDAZOLE	TERBUTALINE
FENOTEROL	STIBENES
FURAZOLIDON and NITROFURAN group	TERBOLONE
ISOXUPRIN	ZERANOL

Surveillance result of antibiotic use in breeding

Surveillance result of antibiotic utilisation in breeding porker and fowl in some farm houses located in Hung Yen, Ha Tay province, including 30 porker-farms and 30 fowl-farms, result showed that:

Surveillance result of antibiotic use in breeding

- + 100% breeding farms have used antibiotic for treatment (63,3% for porker, 50% for fowl); for prevention (13,3% for porker, 46,7% for fowl).
- + 60,3% food samples for porker, 70,3% for fowl contained at least one kind of antibiotic in Tetracycline group and/or Tylosin group, among them some samples exceeded the allowable limitation of Tylosin.

Surveillance result of antibiotic use in breeding

Surveillance result of antibiotic utilisation in 55 porker-farms in Dong Nai and Binh Duong province:

- 13 types of antibiotic mostly have been used including Tylosin (16,39%), Amoxicillin (11,89%), Gentamycin (8,61%), Enrofloxacin (6,56%), Penicillin (6,15%), Lincomycin (5,74%), Tiamulin (5,74%), Colistin (5,33%), Streptomycin (4,51%), Norfloxacin (4,51%), Tetracyclin (4,1%), Ampicillin (4,1%) and Florphenicol (3,28%).

Surveillance result of antibiotic use in breeding

- 44,05% farms have selected antibiotic based on symptoms of porker and breeder's experience; 33,33% farms followed prescription of veterinarian, 16,67% followed manufacturer's recommendation, only 5,95% farms followed result of disk diffusion testing.

Surveillance result of antibiotic use in breeding

- - Ratio of food samples using in breeding contain antibiotic: Tylosin 31/60 samples (51,67%), Tetracycline: 25/60 samples (41,16%), Oxytetracyclin: 4/60 samples (6,6%) và Chlotetracycline: 15/60 samples (25%).
- - Number of samples exceed the limits according to the stipulation TCN 861-2006: Tylosin: 1/60 (1,66%); Tetracycline: 2/60 samples (3,3%); Oxytetracycline 1/60 sample (1,66%); Chlotetracycline: 9/60 samples (15%).

Comment:

- The use of antibiotic in breeding was not rational: antibiotic selection, dosage, administration mainly based on breeder's experience; did not care for putting a stop of using antibiotics or chemicals before exploiting products (meat, eggs, milk).



Analysis result of redundant antibiotic in aquaculture

Analysis result in 2007

1. For aquaculture samples collected from breeding pond

- Group of banned antibiotics (A6): Detected 07 samples contaminated Chloramphenicol with detecting range from 0,24- 1,17 ppb out of total 768 tests (0,9 %); 05 samples contaminated SEM (3 shrimp samples, 1 fish sample and 1 soft-shelled crab) with detecting range from 0-3,55 ppb (0,7%).
- One fish sample contaminated Malachite Green (detecting value 21,6 ppb) out of total 326 test (0,3%)

1. For aquaculture samples collected from breeding pond

- For the group of antibiotic having maximum allowable limitation (B1):

+ In 263 analysis tests for Tetracycline target, detected 01 sample contaminated Oxytetracycline at low level.

+ In 571 analysis tests for Sulfonamide target: detected 02 sample contained redundant amount of antibiotic (01 sample exceeded Sulfamethazine limit).

+ In 579 analysis tests, detected 72 samples contained redundant amount of Quinolones. Among them, 67 samples contained redundant amount of Enrofloxacin/Ciprofloxacin (4 sample exceeded limits).

+ Detected 14/53 samples contained Flofenicol and 2/53 samples contained Trimethoprim, at low level.

Comment

- Quinolones and Sulfonamides have been using widely instead of Tetracycline group for treatment in aquaculture.
- General, most of antibiotic use in aquaculture were correct, but still existed some breach of discipline.
- In 2008 this target still needed to control tightly, specifically, strengthening for targets Sulfamethazine (Sulfonamides group) and Enrofloxacin/Ciprofloxacin (Quinolones group).

Analysis result in 2007

2. For aquaculture samples collected from business:

- Detected 02/111 samples contained redundant amount of Chloramphenicol, (hold ratio 1,8%).

3. For veterinary medicine, food and breeding animal water samples

- Veterinary medicine samples: not detected redundant amount of Chloramphenicol and Furazolidone target.
- Food samples: Not detected redundant amount of Chloramphenicol and Furazolidone target.

Analysis result in 2007

- Breeding animal water samples:
- 15/79 water samples contaminated Chloramphenicol with detecting range from 0,1-80,77ppb (19%) increasing compared to analysis result in 2006 (14%);
- Not detected redundant amount of Furazolidone;
- This result showed that, breeders still overused Chloramphenicol in breeding animal production.

Analysis result in 2008

1. For aquaculture samples collected from pond

Group of banned antibiotics (A6):

- Detected 03/794 fish samples in Thot Not, O Mon - Can Tho and 01 sugpo prawn sample in Xuyen Moc – Ba Ria Vung Tau contaminated Chloramphenicol with detecting range from 1,51 – 2,23 ppb (0,5 %);
- 01 shrimp sample in Phu My – Binh Dinh contaminated AOZ with detecting level 12,6 ppb
- 02/754 soft-shelled crab sample in Can Giuoc – Long An contaminated SEM with detecting range from 2 - 2,2 (0,4 %).

Analysis result in 2008

1. For aquaculture samples collected from pond

- 01/340 shrimp sample in Van Ninh – Khanh Hoa contaminated Malachite Green (detecting level 0,6 ppb) (0,3%)
- Combined with result in 2007, awareness of breeder in using Malachite Green for prevention/cure was improved markedly.

Analysis result in 2008

For antibiotic groups having maximum allowable limitation (B1):

- Not detected redundant amount of Tetracycline/246 analysis tests;
- 30/686 samples contained redundant amount of Sulfonamides, among them 10 samples exceeded maximum allowable limitation(06 fish samples in An Phu, Phu Tan - An Giang; Chau Thanh, Cao Lanh - Dong Thap; Vinh Long; 04 sugpo prawn samples in Vinh Thuan, Kien Luong, An Minh - Kien Giang (1,46 %))

For antibiotic groups having maximum allowable limitation (B1):

- 85/711 aquaculture samples contained redundant amount of Quinolones, among them
- 67 samples detected containing redundant amount of Enrofloxacin/ Ciprofloxacin, 7 samples exceeded allowable limitation (05 fish sample in Cai Lay - Tien Giang; Chau Thanh – Dong Thap; Thot Not – Can Tho, Phu Tan – An Giang and 02 sugpo prawn samples in Tan Phu Dong - Tien Giang;
- 1 fish sample in An Phu - An Giang detected containing redundant amount of Sarafloxacin exceeded allowable limitation.

For antibiotic groups having maximum allowable limitation (B1):

- 2/108 fish sample containing redundant amount of Trimethoprim exceeded allowable limitation (detecting level 56ppb, 105,5 ppb) (1,85 %) (in Lai Vung – Dong Thap, Tan Hiep – Kien Giang);
- 19/100 samples containing redundant amount of Flofenicol, at low level compared with allowable limitation.

Comment

- Quinolones, Sulfonamides, Trimethoprim and Flofenicol have been using broadly instead of Tetracycline for treatment in aquaculture.
- General, most of antibiotic use in aquaculture were correct, however, number of discipline infringing cases increased comparing with 2007

Analysis result in 2008

2. For aquaculture samples collected from business Not detected redundant amount of Chloramphenicol out of total 121 analysis test.

Analysis result in 2008

3. For veterinary medicine, food and breeding animal water samples

- Not detected redundant amount of Chloramphenicol and Furazolidone in veterinary medicine, food samples out of 146 analysis tests.
- 14/97 water samples contaminated Chloramphenicol with detected range from 0,02 – 0,29 ppb (14,43%) (in Nui Thanh, Dien Ban – Quang Nam; Cam Ranh, Ninh Hoa, Nha Trang – Khanh Hoa; Dong Hoa, Tuy Hoa – Phu Yen; Tuy Phong – Binh Thuan; An Thuan, Thach Phu – Ben Tre; An Minh – Kien Giang; Duyen Hai – Tra Vinh, Vinh Chau - Soc Trang)

Analysis result up to July 2009:

- 1. *For aquaculture samples collected from pond***
 - 1/437 sample exceeded limit of Sulfamethoxazole (in Long Xuyen- An Giang);
 - 5 fish samples contained redundant amount of Enrofloxacin (Quinolones group) with detecting range from 2,08-7,58 ppb (in Dong Thap, Vinh Long);
 - 4 fish samples contaminated Enrofloxacin, 3 fish samples contaminated Flumequin;
 - 1 soft-shelled crab sample contaminated SEM

Analysis result up to July 2009:

2. For veterinary medicine, food and breeding animal water samples

- 3 veterinary medicine samples contained Chloramphenicol in Giao Thuy Nam Dinh; Quynh Luu- Nghe An; Ky Anh- Ha Tinh (detecting value: 1,8ppm; 18,7ppm; 0,42ppm).

Analysis result up to July 2009:

- 2 veterinary medicine samples contained Furazolidone in Ninh Hoa- Khanh Hoa, Go Cong Dong- Tien Giang (detecting value: 5,1ppm; 9,4 ppm)
- 1 food sample contained Furazolidone in Ninh Phuoc-Ninh Thuan with detecting value 1,6ppm.
- 2 water samples in Hue, Da Nang contained redundant amount of Chloramphenicol

Conclusion

To ensure hygiene and safety food products for users and for exportation, surveillance of antibiotic use in animals needs more and more strengthen.



Thank you