Government of Andhra Pradesh
Fisheries Department

Addressing Antibiotic misuse in food and Antimicrobial Resistance

- Aquaculture

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RECENT ISSUES ON FISH AND SHRIMP EXPORTS

1. Shrimp Containers Rejection due to presence of antibiotic residues – EU and USA
2. Usage of Formalin in Fishes sold in domestic market in N.E. States and Bihar etc
3. Bioaccumulation of Heavy metals (Cadmium, Chromium, lead and Mercury) in Fishes meant for domestic consumption

Misuse of Antibiotics and Chemicals
<table>
<thead>
<tr>
<th>Year</th>
<th>EU MARKET</th>
<th>USA MARKET</th>
<th>JAPAN MARKET</th>
<th>TOTAL (3 EXPORT MARKETS)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. of Rejections from India</td>
<td>AP No. of Rejections from India</td>
<td>AP Total No. of Rejections from India</td>
<td>No. of Antibiotics Rejections from India</td>
</tr>
<tr>
<td>2011</td>
<td>29</td>
<td>14</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>2012</td>
<td>32</td>
<td>8</td>
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<tr>
<td>2013</td>
<td>11</td>
<td>4</td>
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</tr>
<tr>
<td>2014</td>
<td>28</td>
<td>12</td>
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<td>11</td>
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<tr>
<td>2015</td>
<td>17</td>
<td>5</td>
<td>3</td>
<td>3</td>
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<tr>
<td>2016</td>
<td>27</td>
<td>5</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>2017</td>
<td>39</td>
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<tr>
<td>2018</td>
<td>16</td>
<td>8</td>
<td>7</td>
<td>7</td>
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<tr>
<td>TOTAL</td>
<td>199</td>
<td>71</td>
<td>48</td>
<td>44</td>
</tr>
</tbody>
</table>

Source: MPEDA, RC, VIJAYAWADA
POSSIBLE AREAS OF CONCERN

- **Brood Stock**:  
  - The imported *L. vannamei* brood Stock is SPF and is free from OIE listed pathogens and free from antibiotic residues.  
  - However, Maintenance of brood stock and quality of Brood stock from batch to batch since varies.

- **Shrimp Feed**:  
  - There is no law/act to control the ingredients in the feed and feed supplements used in fish and shrimp aquaculture:  
  - CAA registration for such products is not fool proof as 100% testing is not done for Product wise/ batch wise with proper labeling.  
  - Clandestine transport of bulk drugs containing banned antibiotics from neighboring countries to farm site directly with attractive packing.
POSSIBLE AREAS OF CONCERN

Water:

- Shrimp Farmers claim that they never use any banned antibiotics in shrimp aquaculture and perhaps, the agriculture discharges, Urban sewage containing cosmetics in the water may contain pesticide residues and heavy metal traces.

- The shrimp hatcheries operators also report that, though they are not using antibiotic, they are sourcing from water.

- In rare cases, some farmers may use feed supplements containing antibiotics due to ignorance or lack of knowledge as preventive measure.

Therefore, Shrimp Farmers request that the

- State shall provide affordable, accessible and adequate Water Quality testing facilities at farm sites / near by hatcheries.

- Water Quality parameters may be regularly monitored at strategic aquaculture locations present along the coast of 974 Kms for ascertaining any possibility of contamination with antibiotic residues.

- The Water Quality parameters may also be tested at identified Creeks / drains where such water is fed to aqua farms.
MEASURES TAKEN

• EU – NRCP – PHT by MPEDA
• USA- S.I.M.P. - Farm Enrolment.
• Desilting and Deweeding of Selected Creeks.
• Enacting G.O. MS No. 2, dated 11.01.2017 – Regulation on banned antibiotics (DLC and Task Force Committees)
• Inspection of Hatcheries and Aqua Shops - Demonstrative actions (Notice, Penalty, Closer of the Facility).
• Aqua Zonation
• Capacity building / Awareness campaigns
• Strengthening of Labs- Aqua, ELISA and QC
• Implementing testing protocols for shrimp exports as per standards of importing country.
• MPEDA initiated antibiotic free PL Production programme as demonstration in hatcheries; antibiotic free certification for hatcheries
INITIATIVES REQUIRED

• No individual Dept. is having rights to regulate selling of aqua-inputs in veterinary shops and usage of banned antibiotics in aquaculture in view of lack of strict stipulations/guidelines.

• Hence Robust Mechanism for implementation of serious crack down on use of prohibited antibiotics is needed; particularly
  – On use of antibiotics in aquaculture farm
  – On use in feed and feed supplement
  – In hatcheries

• Amendment of FSS Act, 2006 in the light of misuse of antibiotics in aquaculture

• A Comprehensive law is needed to control usage of antibiotics in aquaculture for ensuring legal provisions for action against usage of banned antibiotics in aquaculture activities.

• To discontinue the sale of veterinary grade medicines in aqua shops and to aqua farmers immediately.
Thank You
List of antibiotics banned for using in Shrimp Aquaculture

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Chloramphenicol</td>
<td>11</td>
<td>Metronidazole</td>
</tr>
<tr>
<td>2</td>
<td>Nitrofurans</td>
<td>12</td>
<td>Ipronidazole</td>
</tr>
<tr>
<td>3</td>
<td>Neomycin</td>
<td>13</td>
<td>Clenbuterol</td>
</tr>
<tr>
<td>4</td>
<td>Nalidixic Acid</td>
<td>14</td>
<td>Sulfanilamide</td>
</tr>
<tr>
<td>5</td>
<td>Sulphamethoxazole</td>
<td>15</td>
<td>Glycopeptide</td>
</tr>
<tr>
<td>6</td>
<td>Chloroform</td>
<td>16</td>
<td>Dimetridazole</td>
</tr>
<tr>
<td>7</td>
<td>Chlorpromazine</td>
<td>17</td>
<td>Fluroquinolones</td>
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<tr>
<td>8</td>
<td>Ronidazole</td>
<td>18</td>
<td>Dapsone</td>
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<tr>
<td>9</td>
<td>Nitronidazole</td>
<td>19</td>
<td>Aristalochia Sp.</td>
</tr>
<tr>
<td>10</td>
<td>Colchicine</td>
<td>20</td>
<td>Diethylstilbestrol (DES)</td>
</tr>
</tbody>
</table>
OIE List of Crustacean diseases

- Acute hepatopancreatic necrosis disease
- Infection with *Aphanomyces astaci* (crayfish plague)
- Infection with *Hepatobacter penaei* (necrotising hepatopancreatitis)
- Infection with infectious hypodermal and haematopoietic necrosis virus
- Infection with infectious myonecrosis virus
- Infection with Macrobrachium rosenbergii nodavirus (white tail disease)
- Infection with Taura syndrome virus (TSV)
- Infection with white spot syndrome virus (WSSV)
- Infection with yellow head virus genotype 1 (YHV)
The Government of AP with a main objective to promote sustainable aquaculture in the state and regulate unauthorized conversion of productive agriculture land in all coastal Districts, issued GOMS No. 16, AHDDF Dept. Dated 20-4-2018 for notifying the both existing and potential aquaculture area in all coastal districts.

- **Benefits of Aquaculture Zonation:**
  - Provides better regulation in the zoning area for eco-friendly and sustainable aquaculture
  - Condense the conflicts among aqua farmers and other land users
  - Easing of Aquaculture Registration / Licenses process
  - Helps to expand the aquaculture in identified potential areas with species specific basing soil and water characteristics and water source
  - Facilitate to plan for creating supporting infrastructure facilities like approach roads, power lines and de-silting of creeks/ Drains
  - Enables the Govt. to promote cluster approach, Better Management Practices and FPOs with backward & forward linkages in hatchery, feed, farming, processing & Value addition with the coordination of allied aquaculture supporting agencies.
  - Ultimately to enhance the production and productivity through aquaculture
FARM ENROLLMENT

• Enrollment of Farms for Traceability and Sustainable Aquaculture of 1.02 Lakh Hectares

• In collaboration with MPEDA

• Completed three-fourth of the enrolment and the remaining will be completed by the end of March 2019

• 100% registration and regularization of farms by Coastal Aquaculture Authority/ Department of Fisheries

• Online processing for farms registration
## SPECIES WISE CULTURE AREA IN THE STATE

<table>
<thead>
<tr>
<th>S. No.</th>
<th>District</th>
<th>L. vanname in BW</th>
<th>L. vanname in FW</th>
<th>Total L. vanname</th>
<th>P. monodon</th>
<th>Mud Crab</th>
<th>Sea Bass</th>
<th>Fish</th>
<th>Total area under culture</th>
</tr>
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<tbody>
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<td>1</td>
<td>Srikakulam</td>
<td>1111.35</td>
<td>0.00</td>
<td>1111.35</td>
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<td>0.00</td>
<td>0.00</td>
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<td>35.34</td>
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<td>0.00</td>
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<td>1914.00</td>
<td>12.00</td>
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<td>60.00</td>
<td>200.00</td>
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<td>1500.00</td>
<td>50.00</td>
<td>1388.64</td>
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<td>15.60</td>
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<td><strong>TOTAL</strong></td>
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<td><strong>34098.42</strong></td>
<td><strong>79670.66</strong></td>
<td><strong>3127.85</strong></td>
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<td><strong>1608.95</strong></td>
<td><strong>104300.61</strong></td>
<td><strong>196071.88</strong></td>
<td></td>
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</table>
SAMPLING STRATEGY UNDR NRCP

- Collection & analysis of samples from Aquaculture farms and Hatchery under the National Residue Control Program (NRCP).

- The Sample Size is determined based on the production data Shrimps (P. monodon, P. indicus, L. vannamei etc): The number of samples is decided based on the total production of aquaculture shrimp in previous year (2014-15) i.e 1(One) sample per every 100M/T of production, which also cover at least 10% of the farms enrolled under MPEDA

- Scampi (M. rosenbergii): At least one sample per every 100M/T of production.

- Fin-fishes: Based on the output in the approved export establishments (approved for export to EU) - at least one sample per feed-mill.

- Feed samples: Four samples per feed-mill.

- Hatchery sample (seed/water): At least one sample from each registered hatchery

The allocation/distribution of samples for analysis of Group B substances, to be collected by the ROs and SROs from processing establishments (approved for export to EU) is done taking into consideration of the production/through-put of the processing establishments, number of establishments in each region/state, etc.