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Conclusions (1)

- ✓ Resistance to CHL is widespread in aquaculture in all three SEA countries studied.
- ✓ Resistance is generally to 512ppm CHL or more.
- ✓ Most CHL-resistant isolates are also resistant to at least 3 or 4 other antibiotics. [Resistance to CHL alone is infrequent.]
- ✓ The Enterobacteriaceae are the dominant resistant group, and *E. coli* the dominant resistant species.
- ✓ Some resistant isolates belong to species with clinical relevance.

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Conclusions (2)

- ✓ Most resistance to CHL is mediated by CAT.
- ✓ Most CAT activity is associated with the presence of *cat1* or *cat2* genes.
- ✓ Resistance to CHL can be transferable from aquaculture isolates to a laboratory strain of *E. coli*.
- ✓ There is a need to examine the possibility of transfer of antibiotic resistance from aquaculture isolates to potential human pathogens.
- ✓ There is an urgent need to assess the antibiotic resistance situation in aquaculture in other SEA countries.

OUTPUTS

- ❖ SOPs for
 - sampling of aquaculture environments and farmed species
 - preservation of isolates
 - antibiotic susceptibility testing
 - detection and transfer of antibiotic resistance genes
- ❖ An improved sediment sampling tool.
- ❖ A comprehensive collection of taxonomically-defined antibiotic-resistant bacterial strains from SEA aquaculture environments.
- ❖ CHL MIC data on heterotrophs from aquaculture environments in SEA countries.
- ❖ Information on the role of known antibiotic resistance genes in SEA aquaculture.
- ❖ Evidence of the potential for antibiotic resistance gene transfer from aquaculture isolates to a laboratory strain of *E. coli*.
- ❖ A web-based management system for recording and analysis of antibiotic resistance and strain data.

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Plans and prospects...

- ❖ Confirmation of trends by statistical analyses
- ❖ Dissemination of data and methods/tools
- ❖ Assistance with application of ASIARESIST outputs
- ❖ Follow-up projects
 - Surveys of other SEA countries
 - Extended validation of SOPs
 - Introduction of culture-independent approaches for diversity studies
 - Studies of diversity and characterization of probiotics
 - Further studies of resistance genes and their transfer
 - ... And other possibilities raised in the SEA region.