

## **Herbal sensitivity of *Pseudomonas* bacteria isolated from cultured tilapia with useful applications in vaccine preparation.**

### **Abstract**

The antibacterial activity of certain commercial antibiotics and common herbs was evaluated against pathogenic *Pseudomonas fluorescens*, *Pseudomonas putida* and *Pseudomonas aeruginosa* isolated from Malaysian and Egyptian cultured fish, mainly tilapia. A suspension of freshly cultured isolates was prepared (with 0.5 OD) and 100  $\mu\text{L}$  of this suspension was spread over the Muller's Hinton agar plates. The antibiotic discs were inoculated on each cultured plate while the herbal extracts were soaked on Whatman filter paper (20  $\mu\text{L}$  each) that have been cut into discs and later inserted on to bacteria-cultured plates to screen their sensitivity to both antibiotics and herbs. Double-fold dilution was used to determine the Minimal Inhibitory Concentration (MIC) for the effective herbs at 100, 50, 25, 12.5 and 6.25%. Results revealed high resistance of the tested bacteria against most of the screened antibiotics except Ciprofloxacin. With regard to herbal sensitivity, only *Origanum vulgare* showed effectiveness and inhibition zone against all isolates. The MIC ranged from 15-40% for both Egyptian and Malaysian isolates. Thus, *Origanum vulgare* is recommended as a feed additive for cultured fish and can also be applied for inactivated and live-attenuated *Pseudomonas* vaccines' preparation.

**Keyword:** *Pseudomonas fluorescens*; *P. putida*; *P. aeruginosa*; Herbs; *Origanum vulgare*.