

ANTIBACTERIAL ACTIVITY of *Helichrysum arenarium* subsp. *aucheri* EXTRACT AGAINST *Vibrio* spp. ISOLATED FROM SEA BASS (*Dicentrarchus labrax*) and AQUACULTURE CAGE WATER

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ABSTRACT

Antibiotic applications have been preferred for many years in the prevention and control of bacterial diseases in aquaculture. Intensive use of antibiotics causes deterioration of intestinal flora in fish and accumulation of antibiotics in organs, while it causes the development of antibiotic-resistant bacteria in aquatic environments. To reduce these risk factors, choosing environmentally friendly antibacterial agents such as plant extracts can be used as an alternative approach for a sustainable aquaculture. The aim of this study was to determine the *in vitro* antimicrobial activity of methanol (MeOH) extract obtained from the flower parts of *H. arenarium* subsp. *aucheri*. Plant specimens belonging to native natural populations were collected from near Evcili village, Giresun (40° 19' 35.17" N, 38° 19' 25.58" E; 1621 m) in Turkey, between May and July 2018 and 2019. Plant extracts prepared from air-dried flower parts of the *Helichrysum arenarium* (L.) Moench.subsp. *aucheri* (Boiss.) Davis & Kuphicha. and wholly ground with a grinder. After dissolving in methanol at 35°C for 12 hours, all extractions were filtered, and the methanol was completely evaporated on a rotary evaporator under reduced pressure below 35°C. The antibacterial activity of the extract was tested with the agar well diffusion method. The experiments were repeated three times and the diameter of the inhibition zone was measured. Minimum inhibitory concentration (MIC) was calculated by standard micro-dilution method. Extract was tested against selected *Vibrio* spp. (*V. anguillarum*, *V. alginolyticus*, *V. fluvialis*, *V.ponticus*, *V. harveyi*, *V. parahaemolyticus*, *V. vulnificus*, *V. tubiashii*, *V. campbellii*, *V. rotiferianus* and *V. furnissii*) which are isolated from aquaculture cage water and naturally infected sea bass (*Dicentrarchus labrax*). *H. arenarium* subsp. *aucheri* exhibited antibacterial activity against *V. parahaemolyticus*, *V. vulnificus* and *V. anguillarum*. The inhibition diameter of the extract ranged from 13.33 to 17.00 mm. These findings suggested that the flower parts of *H. arenarium* subsp. *aucheri* has antibacterial activity against pathogen *Vibrio* spp. and is a potential antibacterial agent candidate for further studies in aquaculture.

Keywords: *H. arenarium* subsp. *aucheri*, *Vibrio* spp., antibacterial activity, methanol extract