



## Contents

Sarong M. A., Jihan C., Muchlisin Z. A., Fadli N., Sugianto S., 2015 Cadmium, lead and zinc contamination on the oyster *Crassostrea gigas* muscle harvested from the estuary of Lamnyong River, Banda Aceh City, Indonesia. AAAL Bioflux 8(1):1-6.

Pojas R. G., Tabugo S. R. M., 2015 Fluctuating asymmetry of parasite infested and non-infested *Sardinella sp.* from Misamis Oriental, Philippines. AAAL Bioflux 8(1):7-14.

Bobiles R. U., Soliman V. S., Yamaoka K., 2015 Changes in otolith structure of seagrass siganid *Siganus canaliculatus* during settlement. AAAL Bioflux 8(1):15-25.

Hontiveros G. J. S., Serrano Jr. A. E., 2015 Nutritional value of water hyacinth (*Eichhornia crassipes*) leaf protein concentrate for aquafeeds. AAAL Bioflux 8(1):26-33.

Bahrevar R., Faghani-Langroudi H., 2015 Effect of fish meal replacement by blood meal in fingerling rainbow trout (*Oncorhynchus mykiss*) on growth and body/fillet quality traits. AAAL Bioflux 8(1):34-39.

Muchlisin Z. A., Rinaldi F., Fadli N., Adlim M., Siti-Azizah M. N., 2015 Food preference and diet overlap of two endemic and threatened freshwater fishes, depik (*Rasbora tawarensis*) and kawan (*Poropuntius tawarensis*) in Lake Laut Tawar, Indonesia. AAAL Bioflux 8(1):40-49.

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Mehrad B., Shabanpour B., Jafari S. M., Pourashouri P., 2015 Characterization of dried fish oil from Menhaden encapsulated by spray drying. AAAL Bioflux 8(1):57-69.

Panchai K., Hanjavanit C., Rujinanont N., Wada S., Kurata O., Hatai K., 2015 Experimental pathogenity of *Achlya* species from cultured Nile tilapia to Nile tilapia fry in Thailand. AAAL Bioflux 8(1):70-81.

Mimeche F., Biche M., 2015 Length-weight relationships of four non-native cyprinid from the semiarid region in North-East of Algeria. AAAL Bioflux 8(1):82-88.

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Esanu V. O., Gavrioloie C., Oroian I. G., Burny P., 2015 Some considerations concerning the artificially colored aquarium fish trade. AAAL Bioflux 8(1):116-121.

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