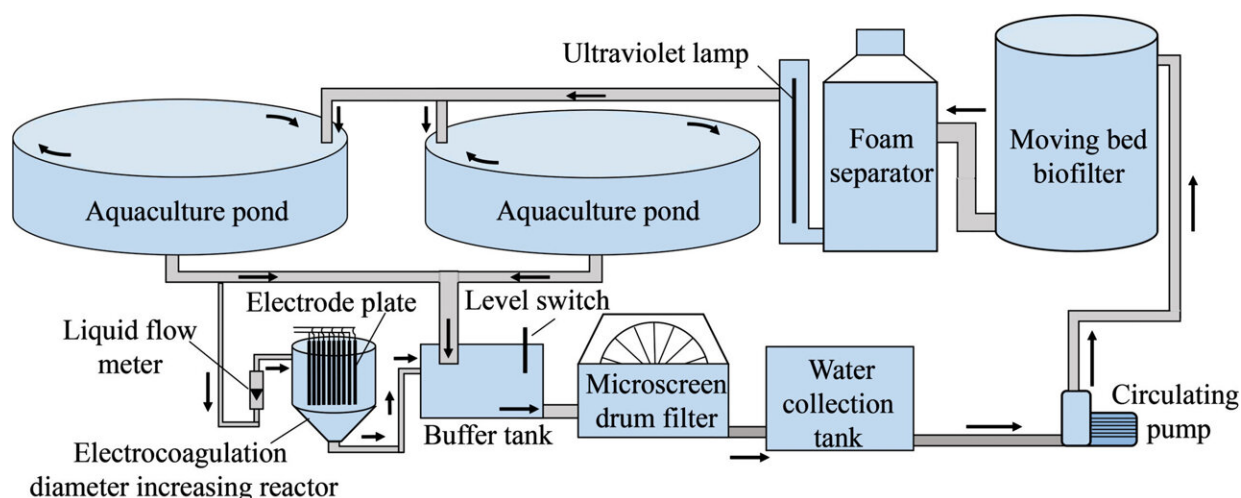


Electrocoagulation helps improve efficiency of microscreen drum filter in recirculating aquaculture system

January 18 2022, by Li Yuan



Graphical abstract. Credit: DOI: 10.1016/j.jwpe.2021.102379

Total suspended solids (TSS) affect water quality in recirculating aquaculture systems (RAS). The TSS with small particle size in traditional RAS is easy to accumulate, resulting in excessive ammonia and nitrite nitrogen, which limits the aquaculture capacity in RAS.

Dr. Xu Jianping from Prof. Sun Jianming's team at the Institute of Oceanology of the Chinese Academy of Sciences (IOCAS) constructed a linkage control system of electrocoagulation diameter increasing reactor

and microscreen drum filter (EDIR-MDF).

Electrocoagulation (EC) was used for the first time to increase the particle size of TSS in RAS and improve the filtration efficiency of the microscreen drum filter without reducing the filtration pore size.

The study was published in *Journal of Water Process Engineering*.

The researchers investigated the application of the EDIR-MDF linkage control system in the RAS of *Litopenaeus vannamei*.

The proportions of suspended solid particle size $\leq 75 \mu\text{m}$ in [aquaculture water](#) were 23.39 percent and 14.33 percent before and after EDIR treatment. Therefore, applying EC technology can improve the removal efficiency of TSS, and reduce the deposition of small-particle-size suspended solids in RAS.

In addition, the researchers found that the average removal efficiency of RAS for TSS, chemical oxygen demand, ammonia, and nitrite was increased by 24.07 percent, 24.30 percent, 8.94 percent, and 1.39 percent, respectively, improving the water quality of the aquaculture pond.

The daily growth rate and feed conversion ratio of *Litopenaeus vannamei* were 0.13 and 0.15 cm/d (0.17 and 0.18 g/d), and 1.11 and 1.08, respectively, before and after EC application. The use of the EDIR-MDF linkage control [system](#) optimized the water environment of the RAS, and promoted the growth of the shrimp.

More information: Jianping Xu et al, Construction and application of an electrocoagulation and filtration linkage control system in a recirculating aquaculture system, *Journal of Water Process Engineering* (2021). [DOI: 10.1016/j.jwpe.2021.102379](https://doi.org/10.1016/j.jwpe.2021.102379)

Provided by Chinese Academy of Sciences

Citation: Electrocoagulation helps improve efficiency of microscreen drum filter in recirculating aquaculture system (2022, January 18) retrieved 23 April 2024 from

<https://phys.org/news/2022-01-electrocoagulation-efficiency-microscreen-filter-recirculating.html>

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