

## عنوان مقاله:

PERFORMANCE IMPROVEMENT OF THE MED VIA ENERGY AND EXERGY POINT OF VIEW

## محل انتشار:

سومین کنگره بین المللی نمک زدایی از آب شور "کاربرد فناوری های پیشرفته در تصفیه آبهای غیرمتعارف برای مناطق تحت تنش آبی"  
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تعداد صفحات اصل مقاله: 10

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## خلاصه مقاله:

Many people in the world do not have adequate access to one of the essential life issues: clean water. ۷۰% of the earth's area is water such as oceans, seas, and rivers. ۳% of this water is potable water (PW). Two-thirds of it is frozen and it can not be used. On the demand side, around ۷۰% of the world's PW is consumed for agriculture, the remaining part is used in industrial (۱۹%) and domestic usages (۱۱%) (۲۰۲۱). Water shortage is called water scarcity. Water scarcity defines as an imbalance between the production and consumption of the PW. It happens annually or for a specific time. Water scarcity is classified into two categories named physical scarcity (ecological conditions) and economic scarcity (inadequate water infrastructure) (Huang et al., ۲۰۲۱). By increasing population, water scarcity solution is treating saline from the seawater (SW) through a process named desalination. This process treats seawater or groundwater that makes the water used for human consumption (Islam et al., ۲۰۱۸). The age of desalination technologies has come back to over ۵۰ years. The early study was done in World War II (Cooley et al., ۲۰۰۶). Desalination processes are divided into three categories (Islam et al., ۲۰۱۸): ۱) Thermal distillation: multi-stage flash (MSF), and multi-effect distillation (MED). ۲) Membrane separation: reverse osmosis (RO) (Ehyaei et al., ۲۰۲۱) and forward osmosis (FO) (Ang et al., ۲۰۱۹) ۳) Other approaches: humidification-dehumidification (HDH) (AlMarzooqi et al., ۲۰۱۴), membrane distillation (MD) (Alkudhiri and Hilal, ۲۰۱۸), freezing, and solar stills (Ahmed et al., ۲۰۱۹). By comparison the thermal distillation and membrane separation, thermal separation has a priority due to the high amount of natural gas reservoir and hot energy loss from the various industries that can be used water treating (Al-Hotmani et al., ۲۰۲۰). MED is one of the oldest distillation methods. MED has a priority in comparison with MSF due to its low-temperature operation, higher capacity, better heat transfer, and lower electrical power consumption (Al-Hotmani et al., ۲۰۲۰).

## کلمات کلیدی:

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/1381066>



