

## Large scale solar water still

Compared publications on the solar still publication related to desalination from 2000 to 2022.

Hence, to signify the state-of-the-art figure of the solar still, the literature survey analysis was conducted on the Web of Science platform. The search items were "Solar still AND Desalination". Subsequently, the data revealed from the "Web of Science Core Collection" database and the VOS viewer software (version 1.6.16.0) were extracted through the period of 2000 to January 2022. The design purpose is to analyze the keywords of the research articles. The designed mapping incorporates a network. Then, the overlay and density visualization mapping are designed through VOS viewer software. Presently, the current search is based on the co-occurrence associated with authors" keywords and is designated to be the minimum occurrence number.

Consequently, the parameters are adjusted in the software, and the mapping is designed. The most common feature of the VOS viewer is overlay visualizations, which are used to categorize density visualization over periods. Solar still research showed that obtained from the cited research articles, the bibliometric mapping of clusters could be identified as seen in Fig. 2. The hotspots clusters can demonstrate the intensive research studies based on the analyzed results attained via the data from "Web of Science" core collection from the search terms "TI is (Solar Still AND Desalination)".

Key terms occurrences network visualization map in solar still publication related to desalination technology

To get a superior signification of the frontiers in the subject of solar still and desalination, a bibliometric analysis for the leading researchers and authors or team works for the most creative scientists in the field is conducted using VOS viewer. The most active and productive countries in conducting solar still studies based on desalination are Egypt, India and Saudi Arabia, as displayed in Fig. 4A. The size of the cluster and label is signified by the weight of the item. Hence, the superior the weight of the country, the greater the item's label and circle, as shown in Fig. 4A.

The information in Fig. 3B follows the research papers by the main authors. The mapping signifies the most strength authors are Kabeel, Omara, Kumar, El-agouz, Youneg, and their co-workers, who are mainly attentive to solar still for investigating such technology, i.e., desalination. It is notable to mention that there is a shortage in the cooperation of researchers from different organizations and countries that require prospective work. Additionally, still, there is a leak in the work done in the field.

Bibliometric network mapping generated via VOS viewer. A. Network map showing the collaborations between various countries in Fenton's reagent for treating Emerging Pollutants; B. Co-authorship overlap visualization map for solar still desalination technology

Article sources A and citation authors B network visualization map in solar still based on desalination

technology

Categorization of water desalination technologies and processes installation capacity

Worldwide source water type

Cross-sectional view of the single-basin solar still

A two-basin or maybe so-called double-basin solar still (Fig. 8) consists of two evaporator basins and fabricated from Plexiglass to allow solar radiation to pass through and reach into the lower evaporator. The lower evaporator is also made of Plexiglass from the same thickness, is painted in black color to absorb the incident solar radiation and is supported by steel frames. The backside of the upper basin thermally refuels the lower condenser. Both basins are located with a tilt angle to the horizontal. Two collecting troughs are used to collect the distillate from both the upper and lower condensers. The bottom of this still is also insulated. The upper basin is partitioned into three segments to avoid the presence of dry spots on the higher portion of the inner glass cover.

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