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Received 12th Feb 2022, Accepted 11th Mar 2022, Online 7th May 2022

Abstract: Good and clean water are necessities for human beings for food, drinking and washing. So many methods are used for converting salty water into good drinking water. The desalination process is one of the most popular salty water purification methods. In this method, good drinking water is produced without salt content from the salty water by natural energy resources using various natural thermal energy storage materials. Natural energy resources are Solar Energy, Wind Energy and Geothermal Energy. The natural materials have thermal energy storage properties such as Glass balls, Pebbles, Gravels, Cotton Cloths, Jute and Rubber mats. The literature survey is focused on the Desalination method for converting salty water into good drinking water by natural energy resources using various natural thermal energy storage materials.

Keywords: Desalination, Solar Energy, Energy storage materials, Natural resources.

I. INTRODUCTION

The quality of drinking water is a fundamental need of human life. Good and clean water are necessities for human beings for food, drinking and washing purposes. Various methods are available for converting saline water into good drinking water [16]-[19]. Those methods include desalination, vapour compression, reverse osmosis and electrodialysis. Solar water desalination is one of the most popular solar technologies [20]-[24]. This technology produces pure water without salt content from the salty water, including the bore and seawater. More research is going on converting salty water into good drinking water. So many researchers are working in the purification process using various thermal energy materials. In this paper, the researcher’s literature survey to be analyzed the desalination process based on thermal energy storage materials for saltwater purification technologies [25]-[32].

II. THE OBJECTIVE OF AN OVER REVIEW LITERATURE SURVEY

Based on the literature review, the purification quality is important for selecting thermal energy storage materials [33]-[37]. From the review, the experiments were conducted about the effect of thermal energy storage materials properties, availabilities and cost of Materials. It aims to introduce the new thermal storage materials of water purification systems with different technological developments [38]-[43].
III. BASED ON ENERGY STORAGE MATERIALS

Cooper et al. [1] assessed the sun-based still exhibition. They examined a new plan of sun-oriented still for expanding the sun-based energy assimilation in the sun-powered desalination process. The different sun-powered energy retaining materials are utilized for sun based heat energy assimilation. The presentation of the sun oriented still is expanded in the new plan of the wick type shifted sun-powered still. Rajvanshi [2] assessed the blending of shading colors with sun-based still saline water and observed the impact of different colours utilized in the sun-powered desalination process. The presentation of sun oriented still was expanded and expanded the creation pace of sunlight based still in the blending of colours with saline water. The colour was blended with saline water, obscured the water fixation, and expanded its sun-based radiation retention [44]-[49].

Rai et al. [3] proposed that the expanded sun oriented radiation was further developed the sun-powered desalination process efficiency. The new plan of dynamic course of single bowl sun-powered still combined with level plate authority, and the sunlight-based radiation was consumed. A few trials were directed, and it worked on the exhibition of Active Solar Still (ASS) with level plate collectors. Minasianet al. [4] proposed that the bowl stockpiling materials expanded the sun-oriented still creation. The sun-powered energy was consumed by the sunlight based energy retaining materials and built the nuclear power of the sun based desalination process with its creation. The sun-powered still viability was improved by wick type materials. They are utilized as energy stockpiling material in the sun-powered still bowl [50]-[56].

Bilal et al. [5] assessed the different retaining materials utilized in sun-oriented desalination. A few trials were directed with various engrossing materials with the single-bowl sun oriented still to build the sun based still yield [57]-[91]. They directed it to explore various assimilation materials like the dark elastic mat, dark colour, and dark ink [92-123]. It came about expanding the still yield from 35% to 60%. Nafeyet al. [6] led a few examinations for working on the sun based still efficiency [124-167]. The adjusted sunlight based still by utilizing dark elastic sheet and dark rock were utilized as capacity materials for engrossing and putting away the more sun based heat energy. The investigations for various rock sizes and accomplished every day still yield roughly 3.5 kg/m2 [62]-[67]. They led tests for changing the extents of rock with various amounts of saline water in the sunlight based still [168-185].

Orel et al. [7] proposed the sun-oriented engrossing strategy’s adequacy. The sun based heat energy was consumed by the different strategies and very specific sun oriented safeguards in various non-dark tones and contrast and the other sunlight based energy retaining methods. Bassam et al. [8] directed a few tests for working on the sun based still execution [68]-[69]. They proposed an adjustment to improve the distillate creation by wiping solid shapes over the water surface. The wipe shapes expanded the surface region over which evaporation of water Happens, consequently causing the increment of yield by 18%. Wazwazet al. [9] assessed the more sun-powered radiation retention to expand the warm hotness stockpiling. The chosen engrossing materials expanded the sun based energy [186-199]. The nickel pigmented aluminium oxide safeguard created more sun-based radiation assimilation and expanded the sun-based still execution.

Konttinen et al. [10] recommended the retaining techniques in the sunlight based still. Different sun based heat retentions were associated with the sun oriented still desalination process like precisely made specific sun-powered safeguard surfaces. The safeguard plate is typically covered with a dark surface to retain hotness, and different shading coatings have likewise been proposed to build the sun oriented heat energy absorption. As a rule, the sunlight-based still execution has a high assembling cost. Yet, a few minimal
expense manufacturing ideas have additionally been proposed in the plan of sun-powered still. Shukla et al. [11] led a trial on the single incline and double slant sun-powered still by keeping the jute material in a level position and submerged in the bowl saline water. In this still, day to day yield during the summer was 2.0 kg/m2, and for the twofold slant still, it was increased to 2.5 kg/m2.

Sakthivel et al. [12] conducted experiments about the different energy stockpiling utilized in the sun-powered desalination process. They have led different avenues regarding dark stone rock size of 6 mm as an energy stockpiling medium kept in the bowl of a solitary incline sun oriented still with bowl area of 1 m×0.5 m. Furthermore, the various profundities of saline water in the sun’s power created the desalination process. The various rock layers with improved saline water in the adjusted regenerative sun base still delivered more sun-powered desalination yield. The numerical model has been created to approve the trial perceptions. It has been observed that the day-to-day yield is around 3.9 kg/m2, which is 20% more than the customary still, and productivity of the still has expanded from 44% to 52%.

Sopian et al. [13] assessed the sun based authorities and the gatherer materials. A few examinations were directed by the inclusion of porous media to expand the warm effectiveness of the frameworks. The assessment of twofold pass sun oriented gatherer with permeable nonporous materials is working on the warm productivity of the sun based still desalination process. Kumar et al. [14] assessed the sun-oriented gatherer’s hotness retaining and moved the sun-powered hotness to the saline water. The incredible hotness move execution is essential in the sun oriented recipients to improve the adequacy of the sunlight based still. They explored heat move upgrade of sun oriented recipients with permeable inclusions and found that significant heat move improvement (64.3%) was gotten in sun based desalination process. Salah Abdallaha et al. [15] examined a few grasping materials like tacky wipes and dark stone to build the presentation of sunlight based still. The covered silver wiry wipes and dark stone gave 28% the yield of sun-powered still, and the uncoated silver tacky wipes and dark stone gave the yield of sun based still of 43%.

IV. CONCLUSION

Observations from the various literature surveys show that various thermal energy absorbing materials are used in the desalination purification process for a higher production rate of good drinking water. The various thermal energy-absorbing materials such as pebbles, gravels, Jute, Bricks, Concrete cement broken pieces and Rubber mates were used in their experiential work. The thermal energy-absorbing materials store solar energy and enhance pure water’s production rate. Some researchers are analyzed gripping materials like stringy sponges and black rock to increase the yield rate of purification. Finally, from the research survey, the performance of the desalination purification process is to be increased by using various thermal energy storage materials.

Acknowledgements

This work was supported by Dr A.Manimaran, Professor, Mechanical Department, Sethu Institute of Technology, Madurai, Tamil Nadu, India, to design desalination plants.

Conflicts of Interest: The authors declare no competing financial interest.

Data Availability Statement: The data that support the findings of this study are available from the corresponding author upon reasonable request.
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