

TiO₂/Jackfruit peel by using solar distiller energy storage analyze

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Abstract

The first substitute mixes that were used in this work were functional, and active heat transmission improved thanks to the following action on the new distiller unit. We have explored Jackfruit peel/TiO₂ (JPT) at various concentrations both with and without covering a solar panel.. The zeta potential of jackfruit peel is 19.3 mV. A SEM image of an absorbent assembly with 85% crystalline XRD values and high absorption bands from FTIR spectroscopy was given. Since the focus of the experimental results is on yields of 4.96 L/m² without coating and 6.12 L/m² with coating, respectively. Demonstration of productivity around daily growth 102.64%.

Introduction

Piyush Pal et al.[1] have modified multiwick DSSS and analysis of enviroeconomic with energy matrix. Therefore constructions of EPBT, LCCE, EPF, energy and exergy economic analysis of Jute and Black cotton wicks produced CO₂ emission per annum about 7.82 & 8.69 tons as energy, exergy analyzed of 0.155 & 0.198 tons based on 1 cm water depth with the performance design. It concluded that of exeryeconomic with parameters performed around 0.0623 and 0.0791 kWh/Rs with analyzed materials than 50 year lifetime of the system interest rate of 4%. [2] analyze of a solar energy based Rankine cycle, RO desalination systems and a MED unit. The results explained that the heat source achieved 65% of exergy destruction. Sharshir et al [3] experimentally investigate the stepped double slope solar still with linen wicks & carbon black nanoparticles they enhanced the evaporation surface area and internal heat transfer of the distiller. The results showed that distill water protectivity of the solar is still 80.57% and energy efficiency is 110.5%. [4] accomplished an experimental investigation to examine the energy and exergy efficiency with activated carbon tubes of distiller are enhanced by 94.14% and 164.29% respectively. They yield freshwater productivity is 5850 ml/m².



Fig. 1. Fresh Jackfruits

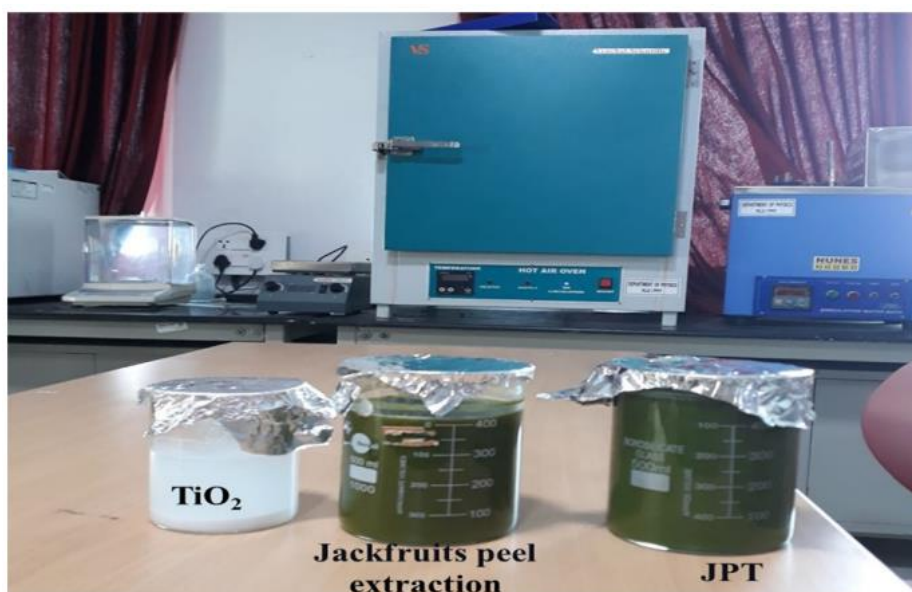


Fig - 2. Synthesis method

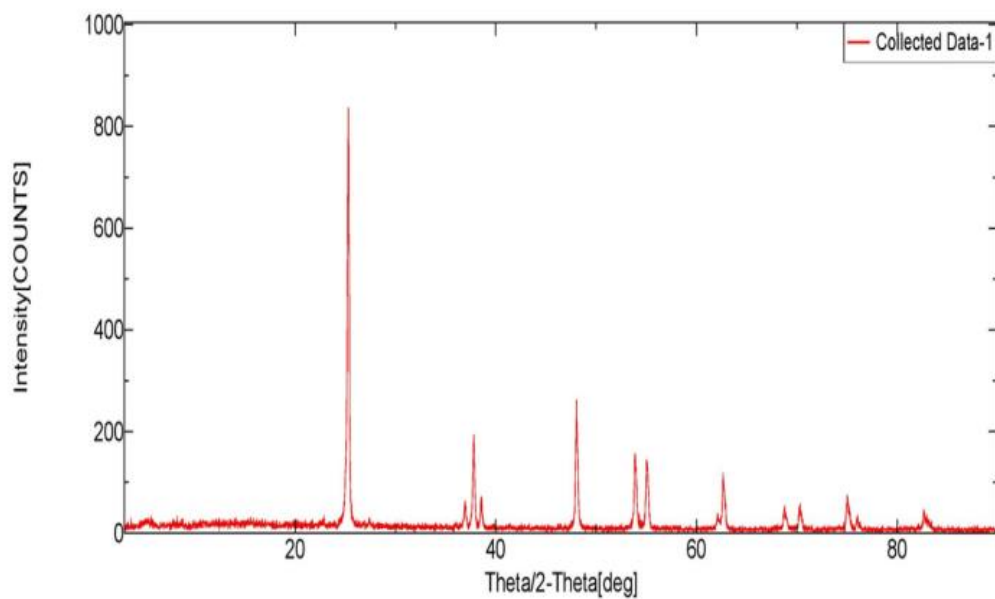


Fig-3. XRD pattern

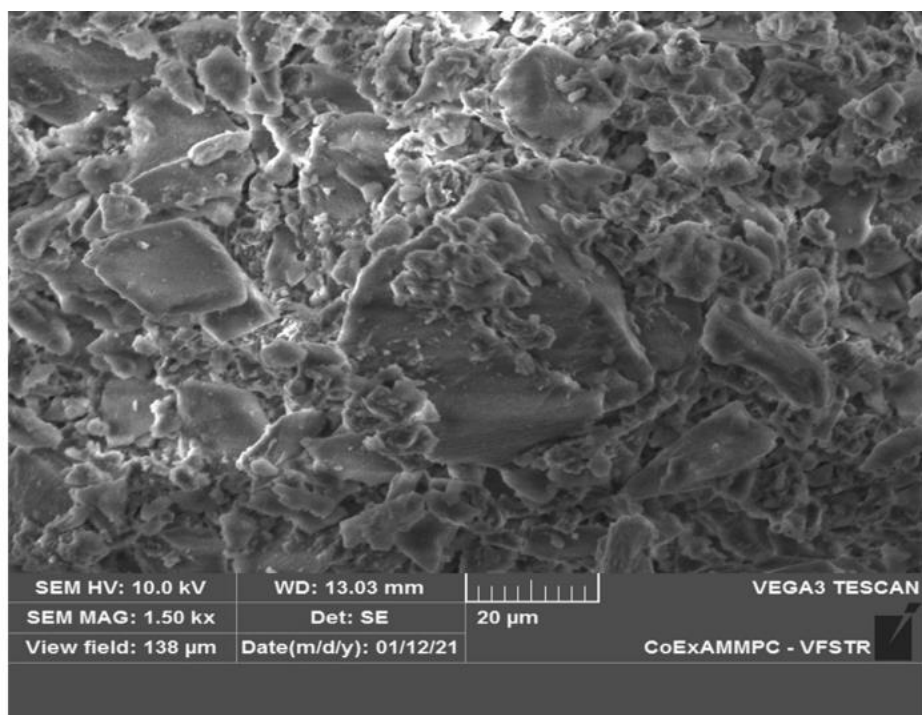


Fig-4. SEM analysis

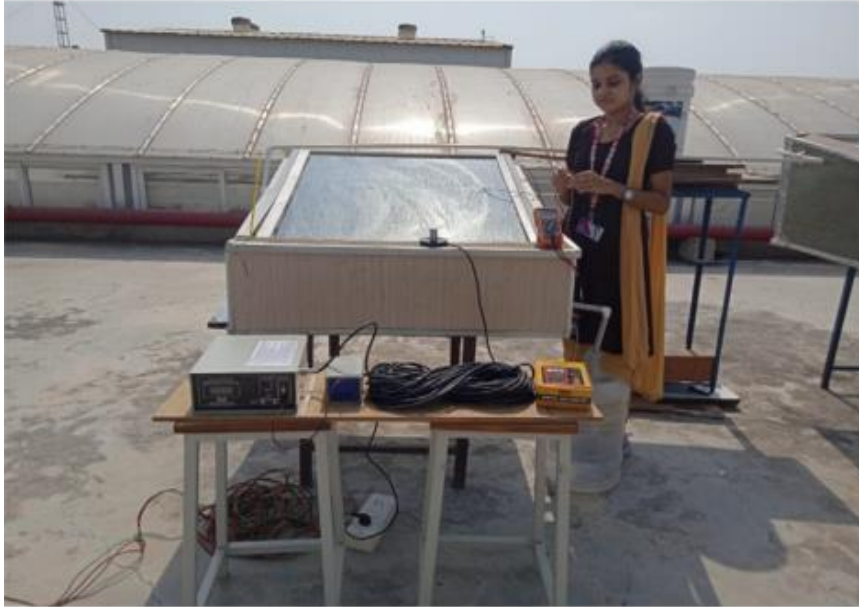


Fig 5. Experimental testing solar still

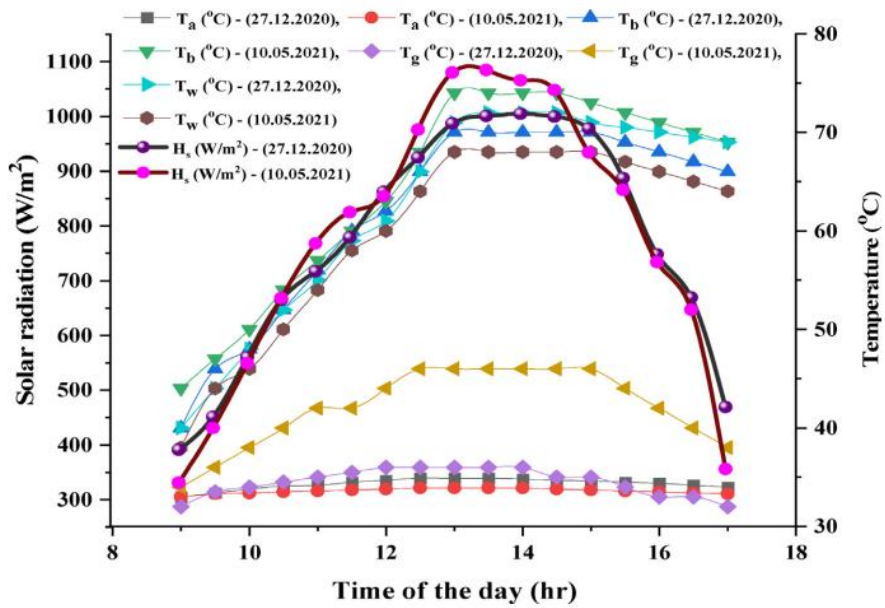


Fig. 6. Glass cover, basin, saline water

Conclusion

It was investigated the useful source absorbing elements found in jackfruit peels. Utilizing green methodology, these materials as an absorption process were first developed and introduced. Under the climatic conditions of Vijayawada, India, an experimental system analysis is presented for the summer & winter seasons. When the basin area of the solar still is covered with JPT, production increases by 8.7919 L/m² per day, and efficiency is 57.86% both on its own and when combined with the expedient without JPT.

Reference

- [1] Piyush Pal, Rahul Dev, Dhananjay Singh, Amimul Ahsan. Energy matrices, exergoeconomic and enviroeconomic analysis of modified multi-wick basin type double slope solar still. *Desalination* 447 (2018) 55-73.
- [2] Saba, S. S., Sreelakshmi, D., Kumar, P. S., Kumar, K. S., & Saba, S. R. (2020). Logistic regression machine learning algorithm on MRI brain image for fast and accurate diagnosis. *International Journal of Scientific and Technology Research*, 9(3), 7076-7081.
- [3] Swellam W. Sharshir, Mohamed A. Eltawil, Almoataz M. Algazzar, Ravishankar Sathyamurthy, A.W. Kandeal. Performance enhancement of stepped double slope solar still by using nanoparticles and linen wicks: Energy, exergy and economic analysis. *Applied Thermal Engineering* 174 (2020) 115278. <https://doi.org/10.1016/j.applthermaleng.2020.115278>
- [4] Saikumar, K. (2020). RajeshV. Coronary blockage of artery for Heart diagnosis with DT Artificial Intelligence Algorithm. *Int J Res Pharma Sci*, 11(1), 471-479.