International Journal of Research Publication and Reviews

Journal homepage: www.ijrpr.com ISSN 2582-7421

Experimental and Mathematical Analysis of Hourly Yield for Square Pyramid Solar Still

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A B S T R A C T

Water is available in nature but owing to salinity and brackish water it is not for drinking, with various pollutants present. Just 0.001 percent left potable water cannot be used for domestic purposes. New technologies arrive with different methods and strategies for purifying water to overcome the problem of water crisis. Discussed the usage of solar energy-driven water desalination technology which is the big problem occurs more on actual application-based phenomena in most of the country in the world. At a small or mediums scale, it is costly than traditional fossil-fuel - based plant but on a broad scale the solar-based plant is technically feasible and is being utilized globally owing to a persistent and inexpensive energy supply. Focusing primarily on green energy due to ample amount in nature and never depleting even no negative environmental effects. Gulf countries are utilizing oil as a fossil fuel for higher efficiency as most nations are already transitioning to renewable energy for environmental purposes. Within this study our aim is to measure theoretical, experimental hourly solar yield and to compare in both cases also measured yield loss. Mathematical analysis is carried out for the measurement of the coefficient of convection and evaporative heat transfer at water depth of 10 mm, 20 mm and angle of 300, the form of the solar is always square pyramid

Keywords:Renewable solar energy, Squarepyramid solar still, Desalination, Solar still, Membrane process, Thermal process

1. Introduction

When we know, 2/3 is earth water, and 1/3 is freshwater. Because of the surplus content, about 1 percent is liquid water, 2 percent is glacier-shaped and the remainder is salty / brackish and not consumable. This is harmful for wellbeing owing to the existence of a higher and toxic contaminant in the low content of drinking water, which raises numerous pests and diseases. Thanks to population increase, mankind's higher lifestyle, economic inaction, agriculture & climate change, many countries in the world are suffering from shortage of pure / potable water. UNO projected almost 1800 million people worldwide will encounter water shortage issue by 2025(Kianifar, Zeinali, and Mahian 2012)(Ding et al. 2005)(Pal et al. 2018).

The use of solar energy-driven water desalination technologies study in this project, which is the greatest problem in the most countries across the world, comes more from the real application-based trend. This is cheaper on a small / medium scale than conventional fossil-fuel - based plant, but the solar-based system is technologically viable on a large scale and is utilized internationally owing to a consistent and affordable source of electricity. Several Solar study articles already by different researchers are focused on efficiency measurement in the area of mathematically modeling simulation(M. and Yadav 2017)(Zhang et al. 2018)(Dev, Singh, and Tiwari 2012)(Setoodeh, Rahimi, and Ameri 2011). Various science & technological advances are discussed. Specific details are gathered depending on technological viability; economic feasibility & efficiency is measured. Nowadays several solar innovations are built focused on commercial intent and up-scaling, profitability improves performance rises by utilizing latent heat storage and phase shift content. Calculations occur mathematically /experimentally on connectives and evaporative heat transfer. Using TDS for sea & brackish water, saline water can be measured 45000ppm & 10,000ppm respectively. Desalination cycle relies on the energy it absorbs relies on the energy it generates approximately 1000m3 of water each day and needs about 10,000 tons of fossil fuel each year (Alkaisi, Mossad, and Sharifian-barforoush 2017)(Ghaffour et al. 2015)(Nayi 2017)(Fatha, Fahmy, and Ha 2003) .

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2. Experimental arrangement and Working process

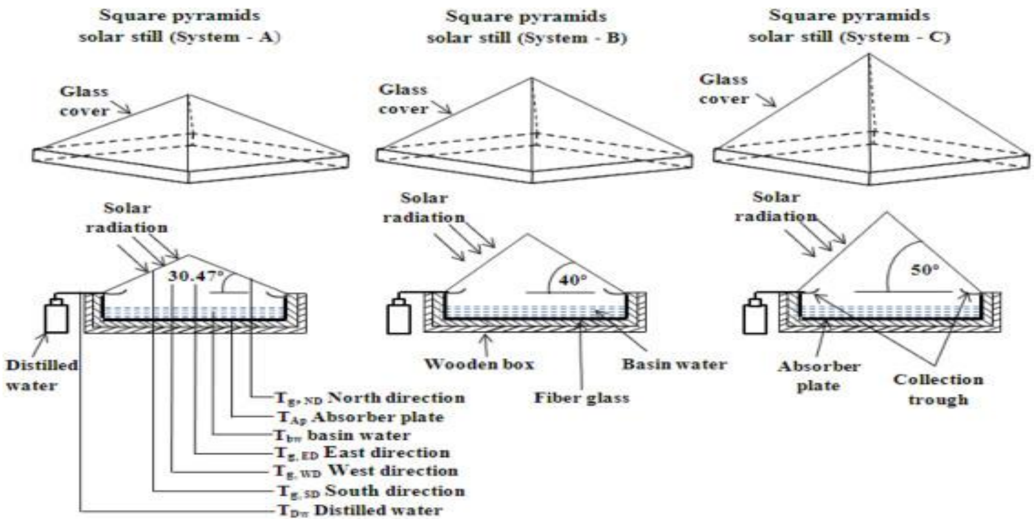

Fig.1: Diagram of solar still

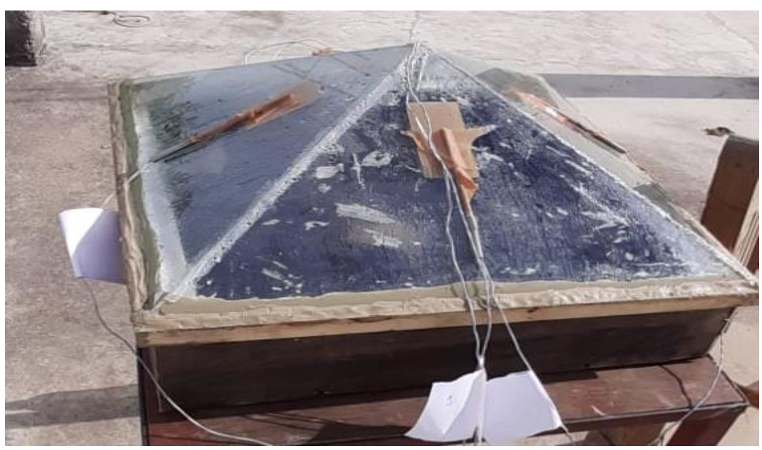

Fig.2: Experimental setup of pyramids solar still

Fig.3- side view of pyramids solar still **Fig.4: L-types thermocouple**

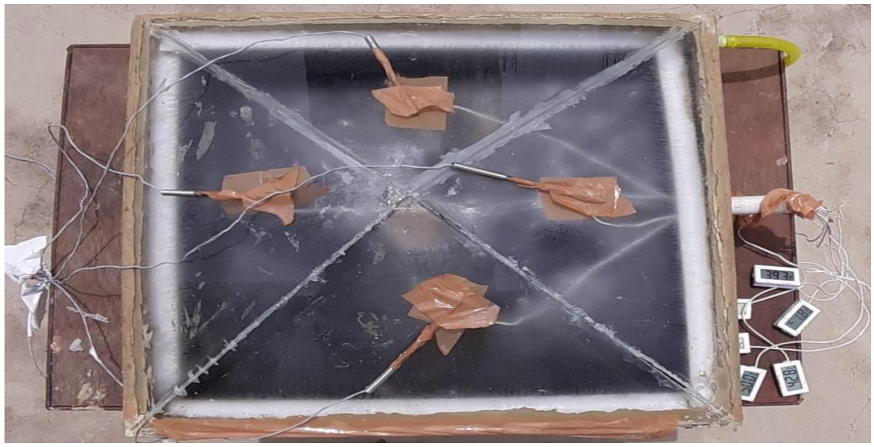

Fig. 5-Top view of the pyramids solar still experimental setup

3. Process of experiment

All the tests are conducted from 8.00 a.m. in the morning to 8.00 p.m. in the evening, reading at varying thresholds for 12 hours.
(i)Inlet glass temperature (ii)Outlet glass temperature(iii)Ambient temperature(iv)Basin temperature(v)Vapor temperature(vi) Water temperature (vii) distillates output(viii) solar insolation
The solar theory is also very clear, similar to weather, it is a natural occurrence but the basic pyramid solar structure is also provided as abovein fig.1 to improve output and performance utilizing different methods. The present work, the impact on the hourly yield of inclination angle, water depth point, the active mode and the passive mode on the installation site at the B. N. College of Engineering and Technology, Lucknow (U.P) – 226201, Indialatitude 26° 15' 53.1936'" N and longitudinal 82° 4' 21.7488" E(Singh and Tiwari 2004)(Panchal and Mohan 2017)

Table 1: Observations of solar still with normal water at height 2.00 cm on 24/6/19

Time	V	Ta	Water qty	γ	p_{atm}	I_{diff}	I_g	I_{dir}	Tci	Tco
8:00 hr	2.90m/s	30.40°C	0.0 ml	100	991.60 mb	332 W/m^2	356 W/m^2	37.00 W/m^2	37.325 °C	37.100 °C
9:00 hr	2.90 m/s	31.40 °C	5.0 ml	100	991.50 mb	466 W/m^2	664 W/m^2	232.00 W/m^2	41.075 °C	42.375 °C
10:00 hr	2.10 m/s	32.90 °C	20.0 ml	99	991.20 mb	408 W/m^2	829 W/m^2	446.00 W/m^2	50.700 °C	51.675 °C
11:00 hr	2.10 m/s	32.80 °C	20.0 ml	89	990.8 mb	352 W/m^2	88 W/m^2	528.00 W/m^2	58.500 °C	56.150 °C
12:00 hr	2.40 m/s	35.30 °C	30.0 ml	83	990.30 mb	385 W/m^2	919 W/m^2	559.00 W/m^2	56.325 °C	53.725 °C
13:00 hr	3.40 m/s	35.50 °C	40.0 ml	73	989.40 mb	369 W/m^2	629 W/m^2	306.00 W/m^2	44.125 °C	48.000 °C
14:00 hr	3.50 m/s	35.40 °C	30.0 ml	70	999.5 mb	381 W/m^2	507 W/m^2	174.00 W/m^2	58.350 °C	57.775 °C
15:00 hr	3.00 m/s	35.60 °C	40.0 ml	68	987.90 mb	263 W/m^2	48 W/m^2	358.00 W/m^2	58.875 °C	57.975 °C
16:00 hr	2.80 m/s	35.60 °C	20.0 ml	72	987.50 mb	159 W/m^2	275 W/m^2	258.00 W/m^2	47.050 °C	45.300 °C
17:00 hr	1.70 m/s	34.70 °C	10.0 ml	77	987.20 mb	76 W/m^2	93 W/m^2	94.00 W/m^2	39.675 °C	38.500 °C
18:00 hr	0.60 m/s	33.80 °C	10.0 ml	84	987.60 mb	5 W/m^2	5 W/m^2	1.00 W/m^2	38.600 °C	36.700 °C
19:00 hr	0.50 m/s	32.80 °C	10.0 ml	92	988.40 mb	0 W/m^2	0 W/m^2	0.00 W/m^2	35.575 °C	34.725 °C
20:00 hr	0.80 m/s	32.30 °C	0.0 ml	99	989.00 mb	0 W/m^2	0 W/m^2	0.00 W/m^2	34.300 °C	33.025 °C

Table 2: Observations of solar still with normal water at height 20 mm on 26/6/19

Time	V	Ta	Vater qty	γ	p_{atm}	I_{diff}	I_g	I_{dir}	Tci	Tco
8:00hr	1.20 m/s	26.60 °C	0 ml	100	988.40 mb	149 W/m^2	148 W/m^2	1 W/m^2	40.225 °C	40.90 °C
9:00 hr	1.20 m/s	29.30 °C	0 ml	100	988.60 mb	397 W/m^2	695 W/m^2	342 W/m^2	42.475 °C	43.925 °C
10:00 hr	1.50 m/s	32. 0 °C	0 ml	100	988.30 mb	669 W/m^2	796 W/m^2	341 W/m^2	44.725 °C	46.375 °C
11:00 hr	1.90 m/s	33.90 °C	10 ml	90	987.90 mb	420 W/m^2	803 W/m^2	367 W/m^2	47.975 °C	47.40 °C
12:00 hr	2.10 m/s	34.90 °C	10 ml	75	987.30 mb	353 W/m^2	895 W/m^2	557 W/m^2	53.250 °C	52.375 °C
13:00 hr	2.10 m/s	35.90 °C	40 ml	77	986.20 mb	394 W/m^2	754 W/m^2	410 W/m^2	59.575 °C	56.90 °C
14:00 hr	1.60 m/s	36.50 °C	60 ml	67	985.40 mb	357 W/m^2	586 W/m^2	294 W/m^2	60.675 °C	57.625 °C
15:00 hr	1.70 m/s	36.50 °C	60 ml	68	984.30 mb	274 W/m^2	426 W/m^2	252 W/m^2	60.075 °C	57.50 °C
16:00 hr	2.00 m/s	36.0 °C	40 ml	69	983.50 mb	146 W/m^2	208 W/m^2	140 W/m^2	54.225 °C	51.725 °C
17:00 hr	2.00 m/s	33.60 °C	40 ml	81	983.60 mb	39 W/m^2	39 W/m^2	1 W/m^2	49.250 °C	46.90 °C
18:00 hr	0.90 m/s	31.60 °C	20 ml	94	984.50 mb	4 W/m^2	4 W/m^2	0 W/m^2	42.225 °C	39.25 °C
19:00 hr	0.60 m/s	31. 0 °C	10 ml	100	985.40 mb	0 W/m^2	0 W/m^2	0 W/m^2	36.375 °C	35.025 °C
20:00 hr	0.80 m/s	31.40 °C	0 ml	97	985.80 mb	0 W/m^2	0 W/m^2	0 W/m^2	33.775 °C	33.00 °C

Table 3: Observations of solar still with normal water at height 10 mm on 27 / 6 /19

Time	V	Ta	Water qty	γ (%)	p_{atm}	I_{diff}	I_g	I_{dir}	Tci	Tco
8:00 hr	2.0 m/s	32.70 °C	0 ml	95	986.20 mb	335 W/m^2	589 W/m^2	341W/m^2	43.30°C	45.40°C
9:00 hr	2.0 m/s	33.60 °C	10 ml	81	985.10 mb	401 W/m^2	726 W/m^2	380W/m^2	50.575°C	50.650°C
10:00 hr	2.0 m/s	34.50 °C	20 ml	76	985.50 mb	453 W/m^2	828 W/m^2	394W/m^2	57.175°C	55.275°C
11:00 hr	1.60 m/s	35.60 °C	20 ml	72	985.10 mb	493 W/m^2	862 W/m^2	367W/m^2	60.00°C	56.00°C
12:00 hr	1.70 m/s	36.40 °C	30 ml	68	984.30 mb	393 W/m^2	874 W/m^2	495W/m^2	63.750°C	60.750°C
13:00 hr	1.70 m/s	37.30 °C	30 ml	66	983.40 mb	374 W/m^2	771 W/m^2	453W/m^2	66.275°C	62.750°C
14:00 hr	1.90 m/s	34.10 °C	20 ml	78	985.60 mb	429 W/m^2	782 W/m^2	391W/m^2	65.625°C	62.225°C
15:00 hr	1.40 m/s	380 °C	20 ml	62	981.50 mb	239 W/m^2	733 W/m^2	314W/m^2	60.70°C	57.750°C
16:00 hr	1.10 m/s	38.20 °C	20 ml	61	980.70 mb	180 W/m^2	263 W/m^2	195W/m^2	56.50°C	54.075°C
17:00 hr	1.0 m/s	37.30 °C	20 ml	67	980.90 mb	101 W/m^2	108 W/m^2	46 W/m^2	51.725°C	50.375°C
18:00 hr	1.70 m/s	35.50 °C	20 ml	83	941.40 mb	11 W/m^2	11 W/m^2	1 W/m^2	46.00°C	44.950°C
19:00 hr	1.40 m/s	34.40 °C	20 ml	88	982.0 mb	0 W/m^2	0 W/m^2	0 W/m^2	40.30°C	39.150°C
20:00 hr	1.10 m/s	33.70 °C	5 ml	97	982.70 mb	0 W/m^2	0 W/m^2	0 W/m^2	36.250°C	35.650°C

Table 4: Observations of solar still with normal water at height 10 mm on 28/6/19

Time	V	Ta	Water qty	γ%	p_{atm}	I_{diff}	I_g	I_{dir}	Tci	Tco
8:00 hr	2.10 m/s	34.20 °C	0 ml	69	984.50 mb	291 W/m^2	597 W/m^2	405 W/m^2	41.850°C	42.975°C
9:00 hr	2.0 m/s	36. 0 °C	10 ml	58	984.50 mb	310 W/m^2	752 W/m^2	508 W/m^2	50.275°C	51.20°C
10:00 hr	1.80 m/s	38. 0 °C	20 ml	49	984.20 mb	318 W/m^2	854 W/m^2	556 W/m^2	56.550°C	55.30°C
11:00 hr	1.80 m/s	39.10 °C	30 ml	47	983.80 mb	322 W/m^2	907 W/m^2	567 W/m^2	61.775°C	58.875°C
12:00 hr	2.50 m/s	39.60 °C	40 ml	46	983. 0 mb	354 W/m^2	875 W/m^2	527 W/m^2	64.30°C	60.625°C
13:00 hr	2.80 m/s	39.90 °C	30 ml	43	982. 0 mb	296 W/m^2	778 W/m^2	542 W/m^2	63.775°C	62.025°C
14:00 hr	2.40 m/s	40.20 °C	20 ml	42	981. 0 mb	271 W/m^2	647 W/m^2	778 W/m^2	62.175°C	57.925°C
5:00 hr	.90 m/s	0.40 °C	20 ml	41	80.10 mb	41 W/m^2	45 W/m^2	327 W/m^2	59.80°C	8.150°C
6:00 hr	.40 m/s	0.0 °C	20 ml	40	79.90 mb	46 W/m^2	73 W/m^2	294 W/m^2	56.10°C	3.975°C
7:00 hr	.90 m/s	8.30 °C	20 ml	46	80.30 mb	66 W/m^2	85 W/m^2	97 W/m^2	52.850°C	0.250°C
8:00 hr	.10 m/s	6.20 °C	20 ml	54	80.90 mb	7 W/m^2	7 W/m^2	1 W/m^2	45.950°C	44.60°C
9:00 hr	.80 m/s	4.80 °C	5 ml	65	81.60 mb	0 W/m^2	0 W/m^2	0 W/m^2	39.10°C	38.125°C
0:00 hr	.90 m/s	3.40 °C	5 ml	79	82.30 mb	0 W/m^2	0 W/m^2	0 W/m^2	35.205°C	34.250°C

Table 5: Observations of solar still with normal water at height 20 mm on 29/6/19

Time	V	Ta	Water qty	γ %	p_{atm}	I_{diff}	I_g	I_{dir}	Tci	Tco
8:00 hr	1.20 m/s	34.1	0 ml	78	989.50 mb	286 W/m^2	599 W/m^2	411 W/m^2	39.40°C	41.175°C
9:00 hr	0.90 m/s	35.7	10 ml	63	984.40 mb	306 W/m^2	750 W/m^2	506 W/m^2	40.775°C	42.775°C
10:00 hr	1.0 m/s	37	10 ml	59	983.90 mb	334 W/m^2	857 W/m^2	538 W/m^2	51.150°C	51.325°C
11:00 hr	1.50 m/s	38	20 ml	55	983.40 mb	328 W/m^2	918 W/m^2	566 W/m^2	55.175°C	53.10°C
12:00 hr	1.50 m/s	38.9	40 ml	52	982.60 mb	320 W/m^2	879 W/m^2	562 W/m^2	53.925°C	52.20°C
13:00 hr	1.70 m/s	39.3	60 ml	50	981.90 mb	351 W/m^2	745 W/m^2	441 W/m^2	52.450°C	49.325°C
14:00 hr	2.80 m/s	35.1	60 ml	56	981.90 mb	121 W/m^2	124 W/m^2	7 W/m^2	47.025°C	42.350°C
15:00 hr	0.90 m/s	36.1	40 ml	58	980.90 mb	231 W/m^2	298 W/m^2	75 W/m^2	47.875°C	44.975°C
16:00 hr	1.10 m/s	36.4	20 ml	62	980.50 mb	129 W/m^2	132 W/m^2	9 W/m^2	49.90°C	46.40°C
17:00 hr	0.80 m/s	36.1	10 ml	72	980.40 mb	75 W/m^2	76 W/m^2	10 W/m^2	46.950°C	45.775°C
18:00 hr	0.60 m/s	35.7	10 ml	71	980.90 mb	8 W/m^2	8 W/m^2	0 W/m^2	41.90°C	41.575°C
19:00 hr	0.80 m/s	34.4	5 ml	88	981.70 mb	0 W/m^2	0 W/m^2	0 W/m^2	36.550°C	37.70°C
20:00 hr	1.40 m/s	33.7	5 ml	99	982.70 mb	0 W/m^2	0 W/m^2	0 W/m^2	36.550°C	37.70°C

Table 6: Observations of solar still with normal water at height 20mm on 2/7/19

Time	V	Ta	Water qty	γ %	p_{atm}	I_{diff}	I_g	I_{dir}	Tci	Tco
8:00 hr	3.40 m/s	33.1	0 ml	82	986.10 mb	334 W/m^2	427 W/m^2	103 W/m^2	38.725°C	40.325°C
9:00 hr	4.0 m/s	34.3	10 ml	75	986.10 mb	361 W/m^2	742 W/m^2	420 W/m^2	43.525°C	41.250°C
10:00 hr	3.70 m/s	34.7	20 ml	72	985.90 mb	440 W/m^2	537 W/m^2	98 W/m^2	43.475°C	42.075°C
11:00 hr	3.70 m/s	33.2	30 ml	67	985.20 mb	377 W/m^2	585 W/m^2	197 W/m^2	46.90°C	47.250°C
12:00 hr	5.60 m/s	35.6	60 ml	62	984.50 mb	370 W/m^2	407 W/m^2	37 W/m^2	50.60°C	48.175°C
13:00 hr	4.70 m/s	34.1	60 ml	68	983.90 mb	301 W/m^2	351 W/m^2	57 W/m^2	50.60°C	48.425°C
14:00 hr	4.60 m/s	35	60 ml	68	983.10 mb	271 W/m^2	398 W/m^2	157 W/m^2	47.60°C	45.025°C
15:00 hr	4.20 m/s	36.1	50 ml	60	982.60 mb	216 W/m^2	435 W/m^2	340 W/m^2	48.375°C	46.925°C
16:00 hr	4.10 m/s	35.8	40 ml	59	982.70 mb	113 W/m^2	162 W/m^2	103 W/m^2	45.050°C	43.425°C
17:00 hr	2.50 m/s	30.5	30 ml	89	983.40 mb	25 W/m^2	25 W/m^2	2 W/m^2	45.80°C	44.650°C
18:00 hr	1.0 m/s	29.8	10 ml	100	983.80 mb	6 W/m^2	6 W/m^2	0 W/m^2	42.625°C	40.625°C
19:00 hr	1.40 m/s	30.2	10 ml	100	984.50 mb	1 W/m^2	1 W/m^2	0 W/m^2	42.625°C	40.625°C
20:00 hr	1.70 m/s	30.4	5 ml	100	985.0 mb	0 W/m^2	1 W/m^2	0 W/m^2	335.975°C	34.675°C

Table 7: Observations of solar still with normal water at height 10 mm on 3/7/19

Time	V	Ta	Water qty	γ%	p_{atm}	I_{diff}	I_g	I_{dir}	Tci	Tco
8:00 hr	3.70 m/s	31.2	0 ml	98	985.80 mb	309 W/m^2	441 W/m^2	171 W/m^2	38.775°C	39.675°C
9:00 hr	4.30 m/s	31.7	10 ml	82	985.60 mb	364 W/m^2	399 W/m^2	40 W/m^2	48.350°C	49.30°C
10:00 hr	3.40 m/s	30.1	10 ml	99	985.90 mb	188 W/m^2	209 W/m^2	45 W/m^2	58.10°C	56.350°C
11:00 hr	4.60 m/s	33.1	20 ml	74	985.10 mb	470 W/m^2	638 W/m^2	158 W/m^2	57.425°C	54.10°C
12:00 hr	4.30 m/s	33.6	30 ml	72	984.60 mb	400 W/m^2	441 W/m^2	41 W/m^2	47.975°C	45.625°C
13:00 hr	4.40 m/s	33.7	50 ml	72	984. 0 mb	353 W/m^2	401 W/m^2	52 W/m^2	44.90°C	41.30°C
14:00 hr	4.10 m/s	33.9	50 ml	71	983.40 mb	335 W/m^2	376 W/m^2	50 W/m^2	41.450°C	37.850°C
15:00 hr	3.60 m/s	33.4	40 ml	71	982.90 mb	217 W/m^2	229 W/m^2	25 W/m^2	51.350°C	51.30°C
16:00 hr	2.40 m/s	33.9	20 ml	72	982.70 mb	156 W/m^2	226 W/m^2	165 W/m^2	55.050°C	53.025°C
17:00 hr	3.70 m/s	33.9	10 ml	69	982.90 mb	82 W/m^2	98 W/m^2	69 W/m^2	50.425°C	51.10°C
18:00 hr	3.60 m/s	32.5	10 ml	75	983.80 mb	7 W/m^2	7 W/m^2	0 W/m^2	42.975°C	41.40°C
19:00 hr	2.30 m/s	31.6	5 ml	78	984.70 mb	0 W/m^2	0 W/m^2	0 W/m^2	36.525°C	35. 0°C
20:00 hr	1.90 m/s	30.8	5 ml	86	985.40 mb	0 W/m^2	0 W/m^2	0 W/m^2	34.450°C	33.10°C

Table 8: Observations of solar still with normal water at height 10 mm on 4/7/19

Time	V	Ta	Water qty	γ%	p_{atm}	I_{diff}	I_g	I_{dir}	Tci	Tco
8:00 hr	3.20 m/s	31.8	0 ml	100	985.30 mb	338 W/m^2	610 W/m^2	344 W/m^2	43.025°C	44.075°C
9:00 hr	40 m/s	32.5	10 ml	93	984.9 mb	446 W/m^2	743 W/m^2	324 W/m^2	49.325°C	49.60°C
10:00 hr	3.20 m/s	43.3	10 ml	82	984.90 mb	542 W/m^2	646 W/m^2	104 W/m^2	56.60°C	54.075
11:00 hr	3.50 m/s	32.5	10 ml	83	984.60 mb	240 W/m^2	239 W/m^2	1 W/m^2	61.70°C	59.30°C
12:00 hr	2.30 m/s	33.5	20 ml	79	984.0 mb	443 W/m^2	641 W/m^2	196 W/m^2	60.075°C	58.20°C
13:00 hr	1.80 m/s	31.6	40 ml	91	983.70 mb	300 W/m^2	353 W/m^2	57 W/m^2	58.250°C	55.775°C
14:00 hr	2.20 m/s	32.8	40 ml	90	982.80 mb	324 W/m^2	525 W/m^2	258 W/m^2	55.950°C	56.175°C
15:00 hr	2.20 m/s	34.6	30 ml	76	982. 0 mb	251 W/m^2	521 W/m^2	368 W/m^2	51.550°C	49.025°C
16:00 hr	1.80 m/s	34.8	20 ml	75	981.50 mb	162 W/m^2	274 W/m^2	276 W/m^2	47.625°C	44.70°C
17:00 hr	20 m/s	34.1	20 ml	76	981.40 mb	66 W/m^2	97 W/m^2	170 W/m^2	36.10°C	32.925°C
18:00 hr	1.50 m/s	33.3	10 ml	79	981.70 mb	7 W/m^2	8 W/m^2	4 W/m^2	32.60°C	32.025°C
19:00 hr	1.50 m/s	32.3	10 ml	83	982.60 mb	0 W/m^2	0 W/m^2	0 W/m^2	31.425°C	31.10°C
20:00 hr	1.70 m/s	32	5 ml	87	983.20 mb	0 W/m^2	0 W/m^2	0 W/m^2	31.225°C	31.225°C

4. Representation of results in Graphical form

With this parameter the different graph is plotted and shows the variation according to climatic conditions.

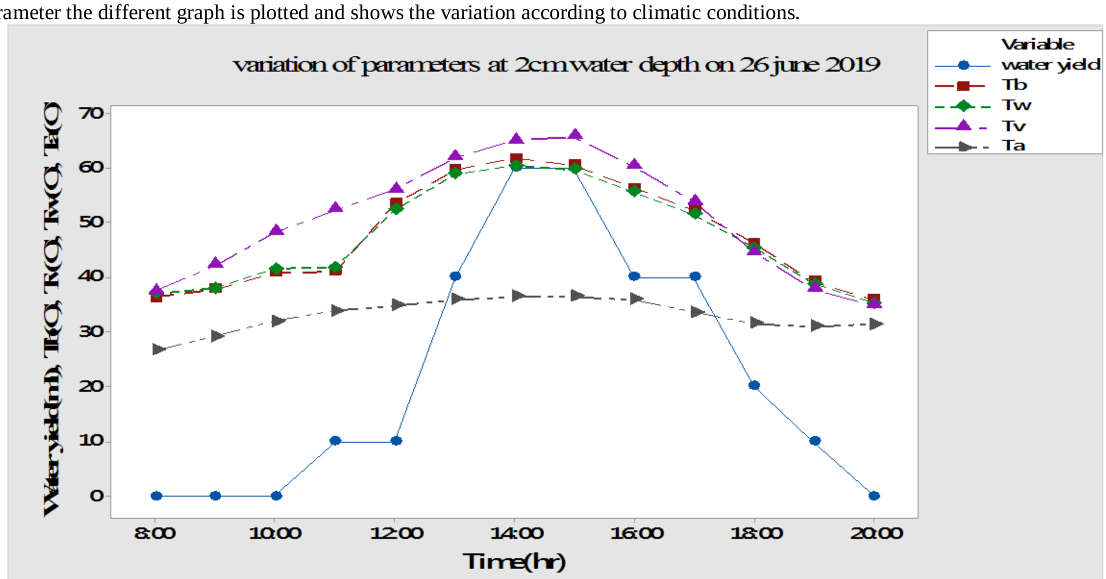

Fig. 6-Variation of the parameters at water depth 2.00 cm for the normal water

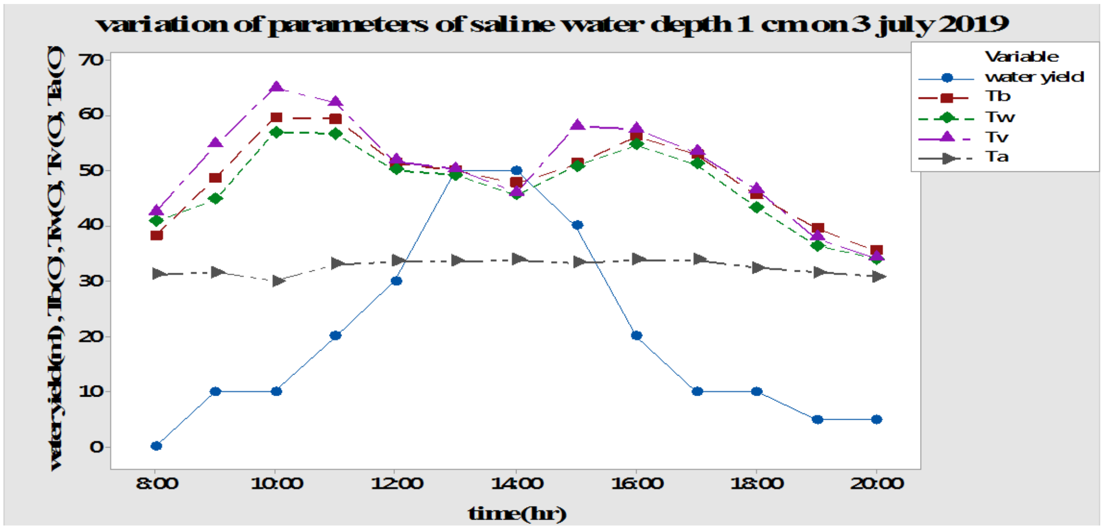

Fig. 7-Variation of the parameters at water depth 1.00 cm for the saline water

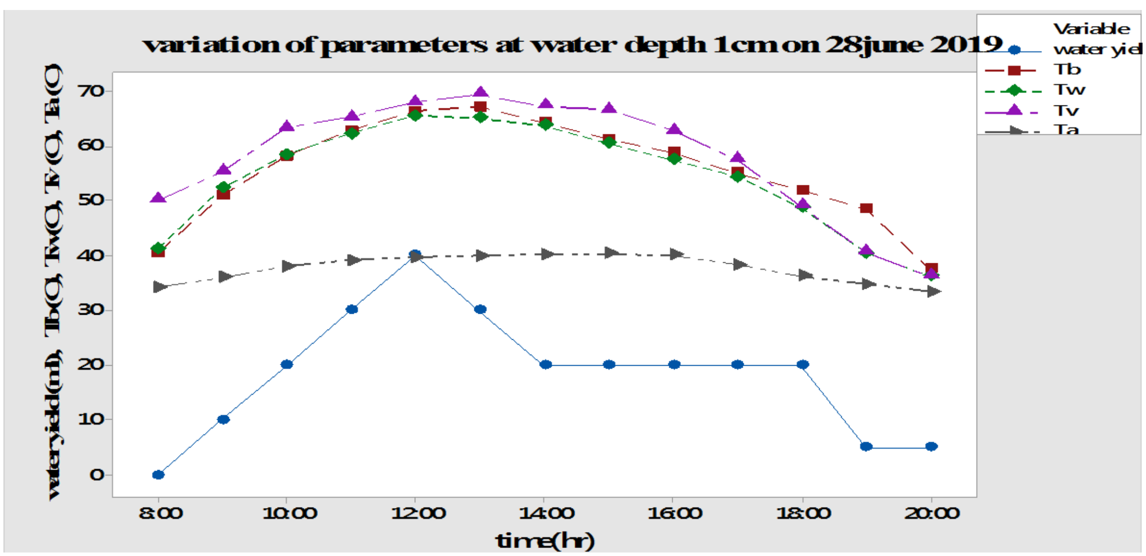

Fig. 8- Variation of the parameters at water depth 1.00 cm for the normal water

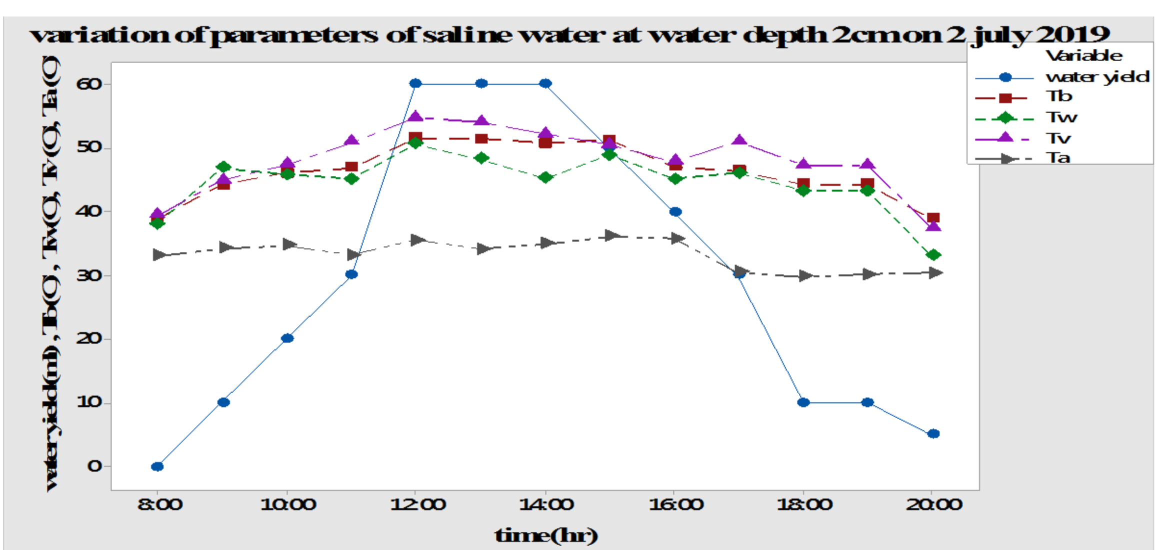

Fig. 9- Variation of the parameters at water depth 2.00 cm for the saline water

5. Results and discussions

It is predicted by numerous methods such as numerical methodology computer simulation system, periodic and transient analyzes, thermal circuit, iteration process and Sankey framework, all of these methods rely on the methods provided by Ueda and Dunkle for measuring internal heat and mass transmission in the solar still. Through this experiment it reveals the difference between various parameters about period for natural and salt water at specific water depths. Experiment performed in June 2019 and July 2019 in which the average temperature differential observed with further evaporation and condensation exists owing to this more distillate production. Similar parameters relate to normal and saline water given below-.

- The exterior and inner glass temperatures of the saline water are higher than normal water
- Less efficient at higher depths of water than lower one
- Optimum inclination angle is selected for optimum yield and output
- Total variation in temperature provided between fresh and saline water glass
- For salty content, better performance and yield relative to natural water
- This is ideal for rural areas which do not have power grids.

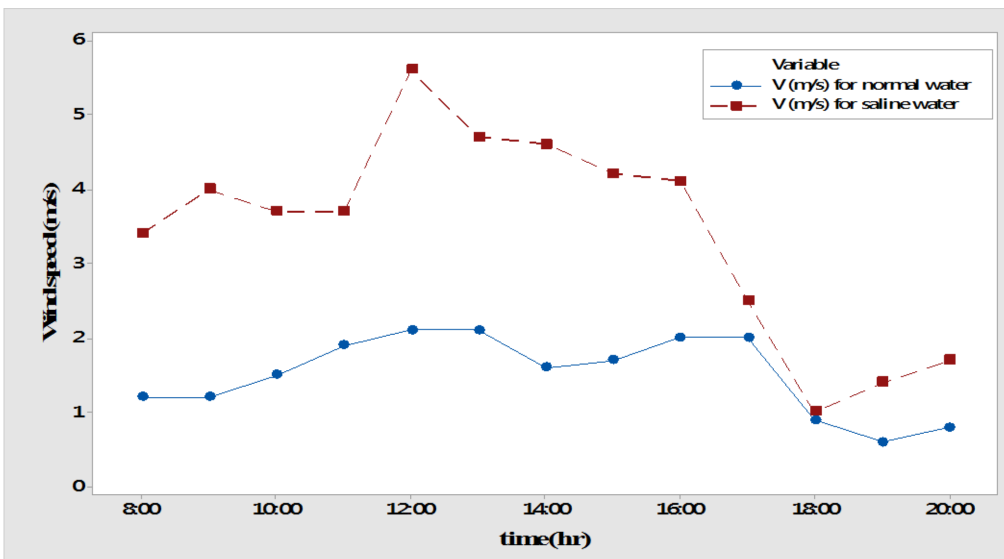

Fig. 10: Variation of wind velocity with time for saline and normal water

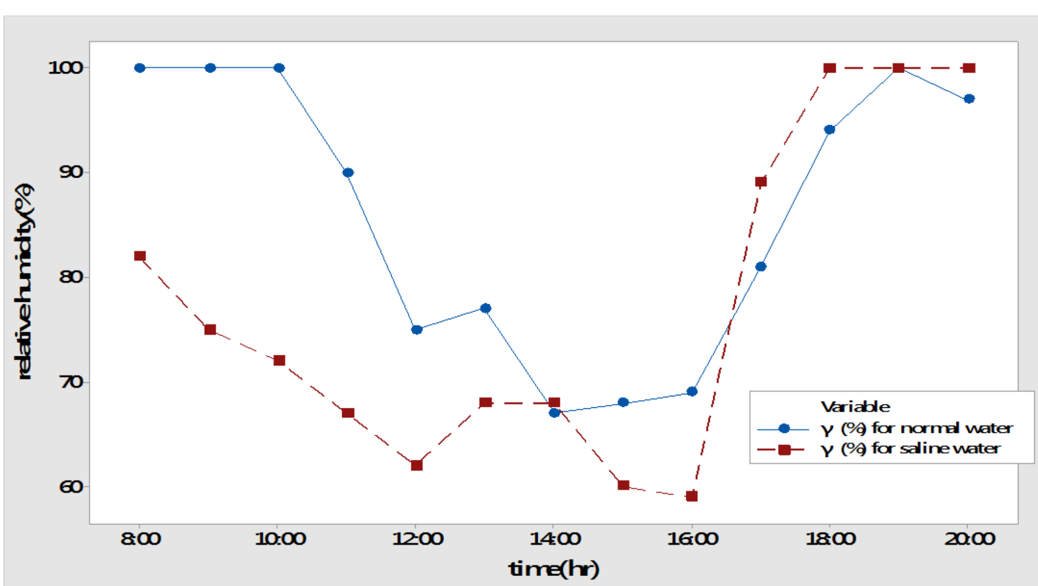

Fig. 11: Variation of relative humidity with time for saline and normal water

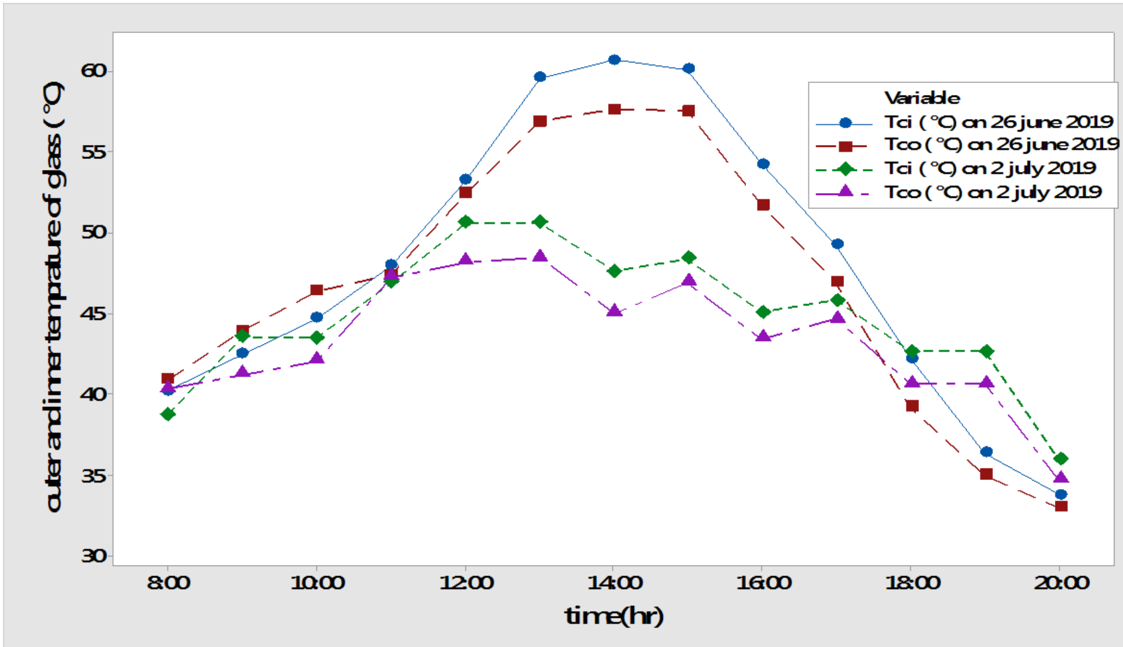

Fig. 12: Variation of glass inlet and outlet temperature with time for saline and normal water

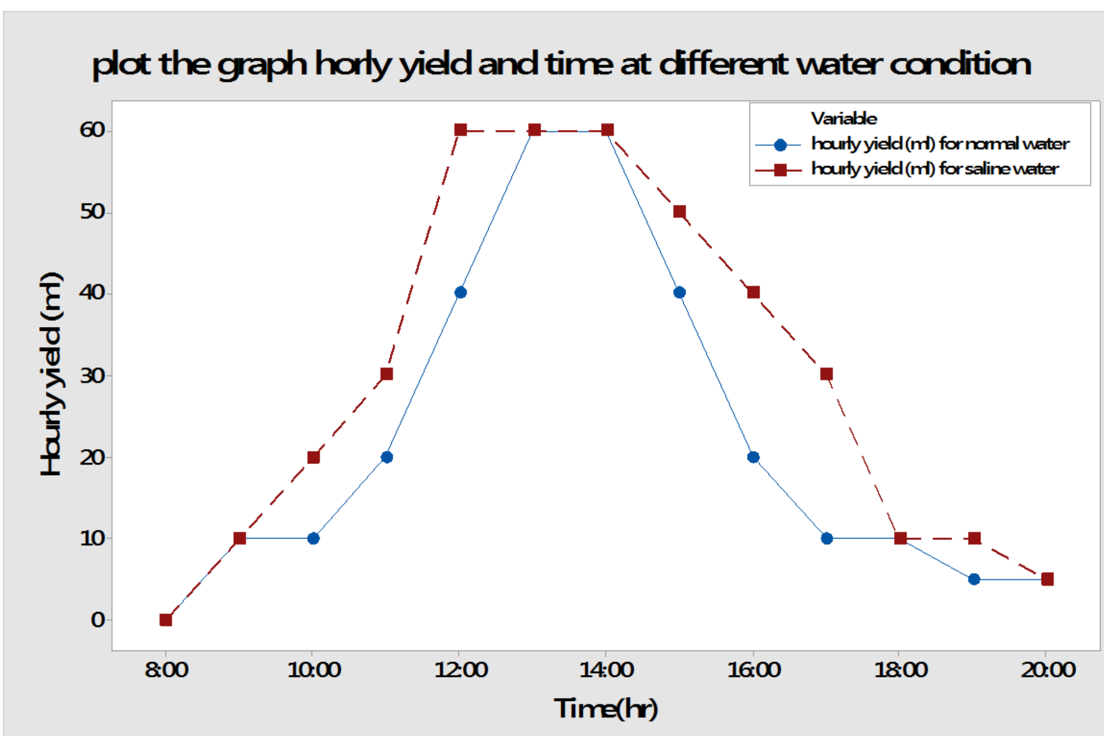

Fig. 13: Variation of hourly yield with time for saline and normal water

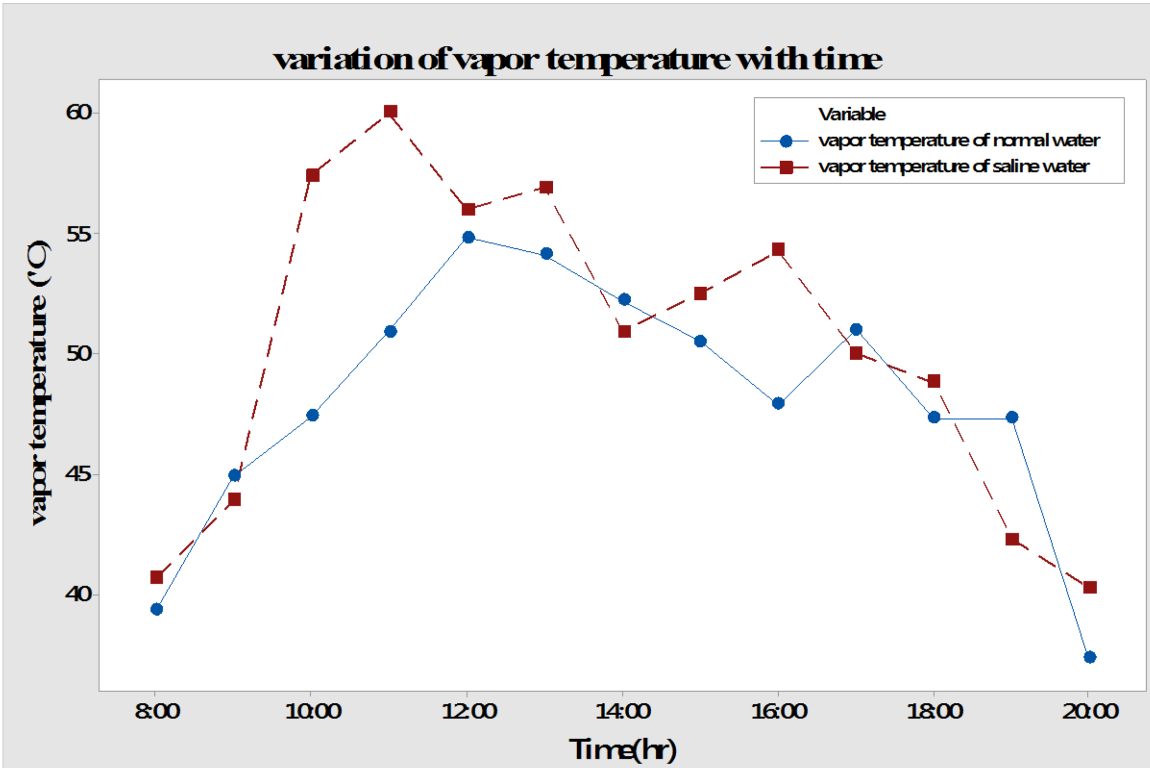

Fig. 14: Variation of vapor temperature with time for saline and normal water

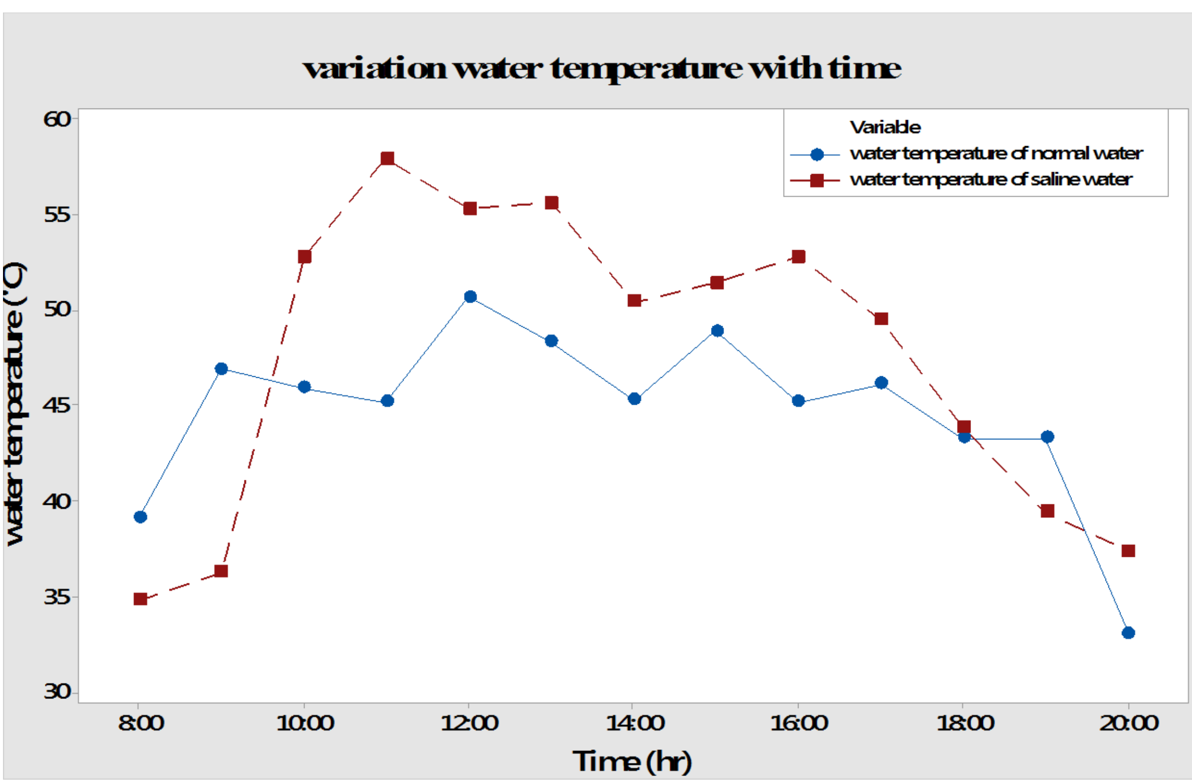

Fig. 15: Variation of water temperature with time for saline and normal water

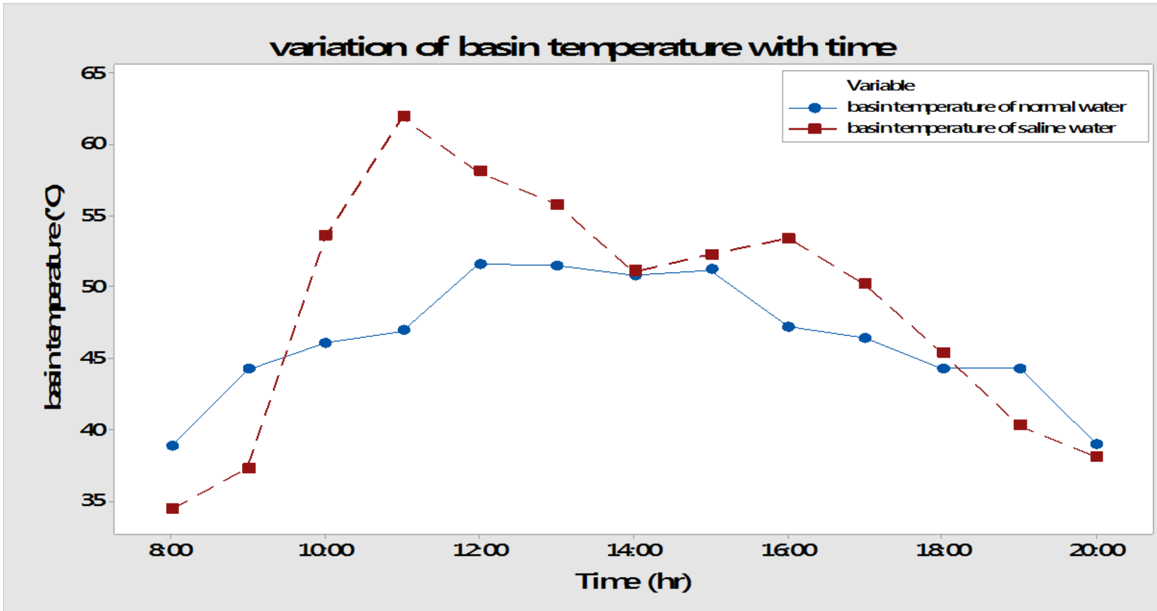

Fig. 16: Variation of basin temperature with time for saline and normal water

6. Conclusion

In this project estimated hourly yield of square solar pyramid also technically and even measured yield loss experimentally. The yield output is measured, which for square solar pyramid is only about 30.9%. In this shows also various parameters depending on yield of square solar pyramid still with plotting graphs at different water depth and water salinity condition. Specific work is ongoing for various water depths and inclinations for single and double slopes, but in this project, we still have to do both of these on solar pyramid to demonstrate their results.

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