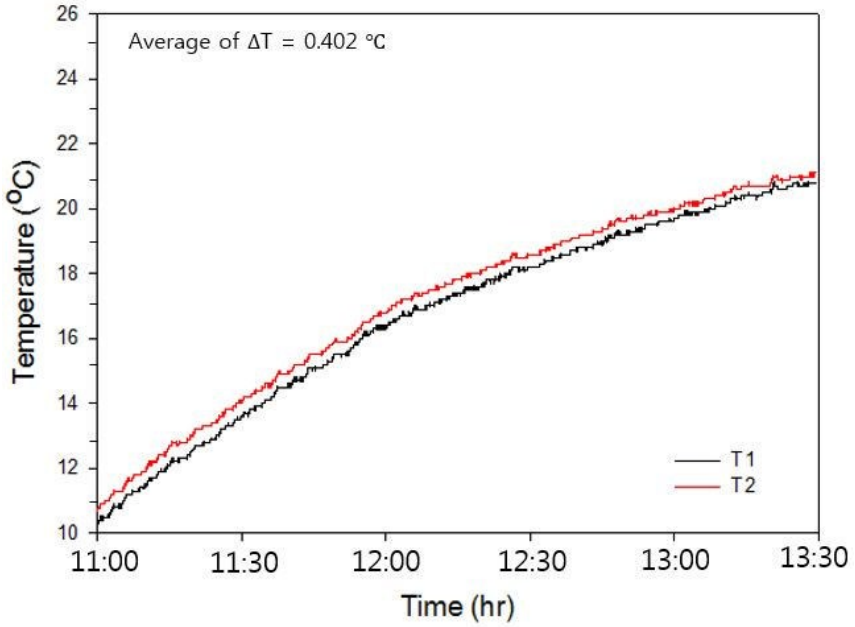
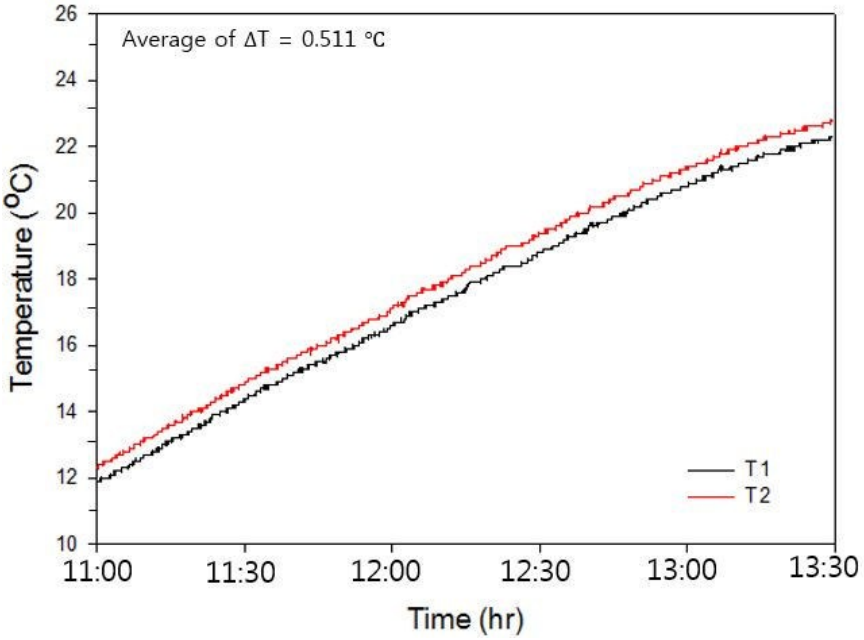
Electronic Supplementary Material (ESI) for RSC Advances.

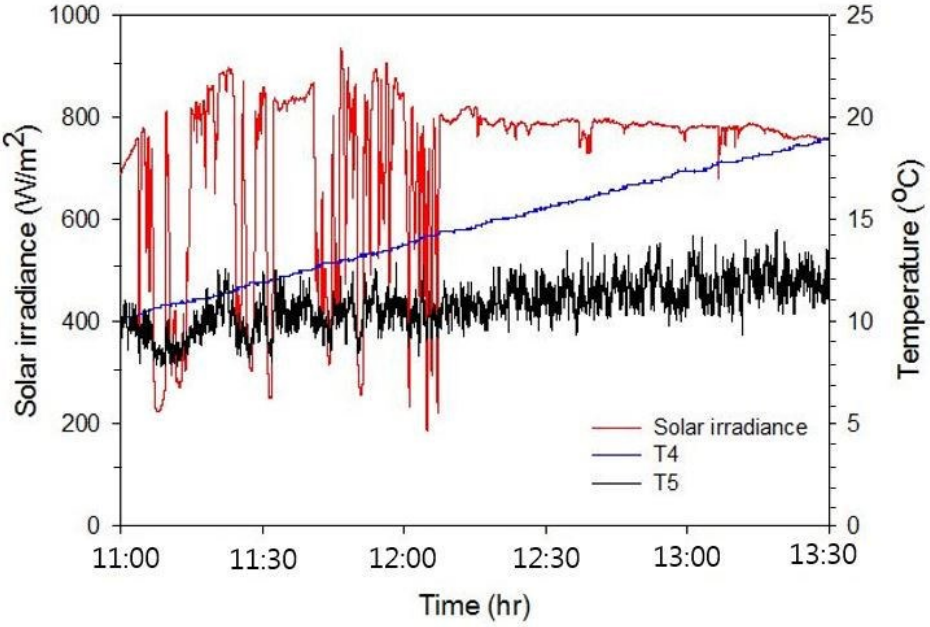
Supplement Data



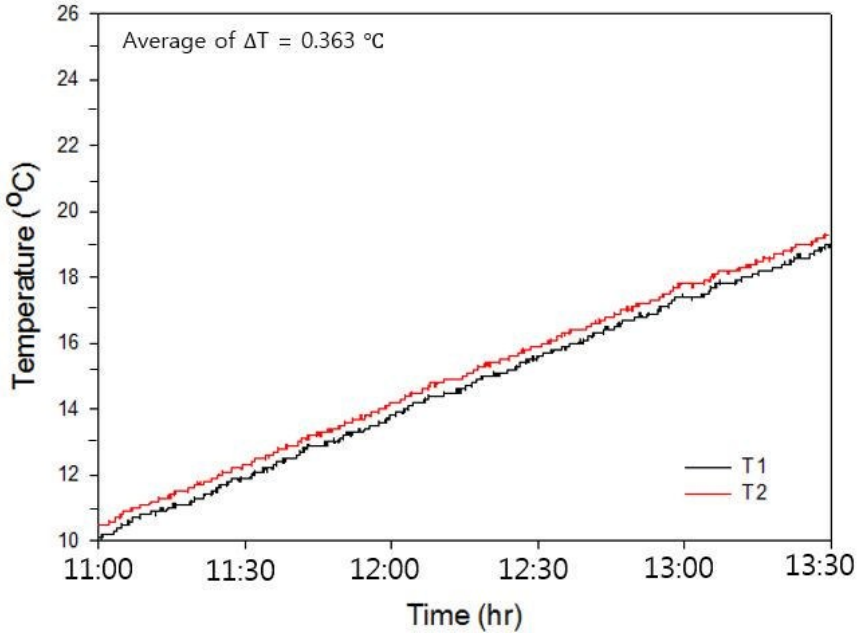
SPD-Fig. 1 Temperature difference between the pump inlet (T1) and outlet (T2) of Type 1 FPC with the pure water. The copper tube of Type 1 FPC is placed under the absorbing plate, and therefore Type 1 FPC is similar with the conventional FPC.



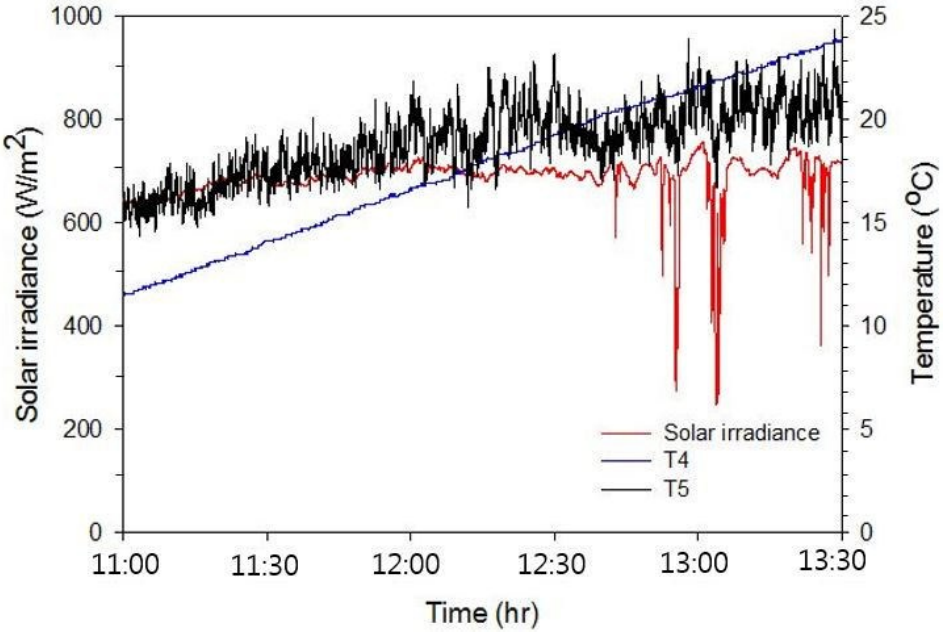
SPD-Fig. 2 Temperature difference between the pump inlet (TI) and outlet (T2) of Type 2 FPC with the black colored water. The transparent polyurethane tube of Type 2 FPC is placed on the absorbing plate for absorbing visible light, and therefore the tube position of Type 2 FPC is completely reversed opposite to the conventional FPC.



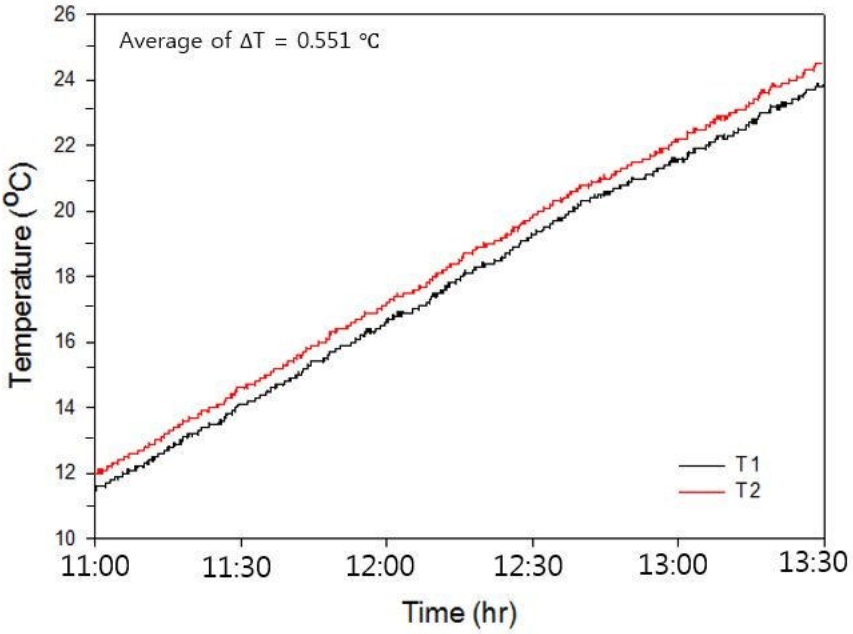
SPD-Fig. 3 Solar irradiation and the temperature rise of the pure water passing through Type 2 FPC with the pure water passing through the transparent polyurethane tube. The experiment was carried out during 2.5 hours from 11 o'clock and the water temperature and the ambient air temperature were measured through T4 (the working fluid temperature) and T5 (the ambient temperature) shown in Fig. 6. During the first hour of the experiment, the solar irradiation were largely fluctuated due to the continuously repeated cloudy and clearing skies.



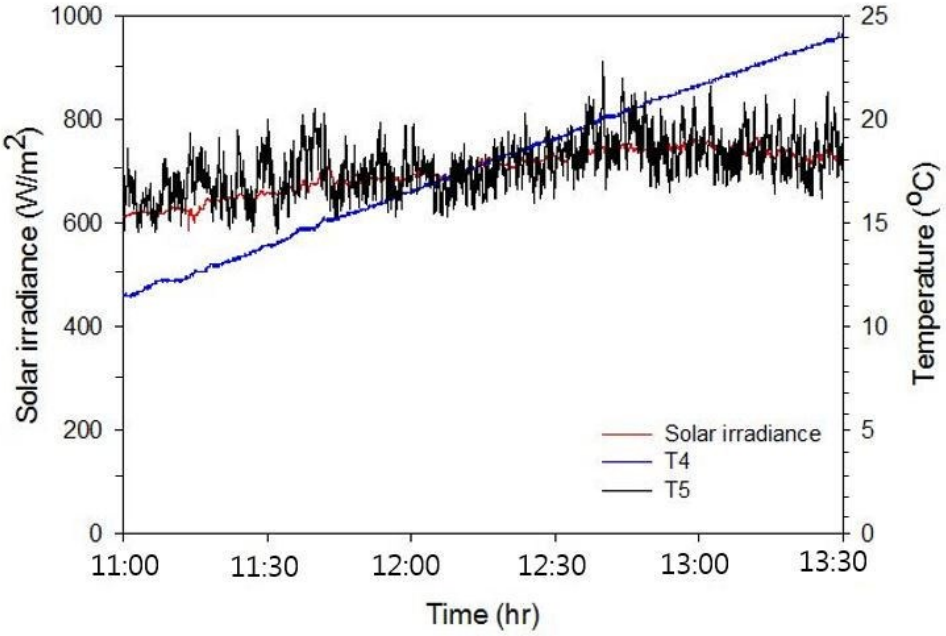
SPD-Fig. 4 Temperature difference between the pump inlet (TI) and outlet (T2) of Type 2 FPC with the pure water passing through the transparent polyurethane tube.



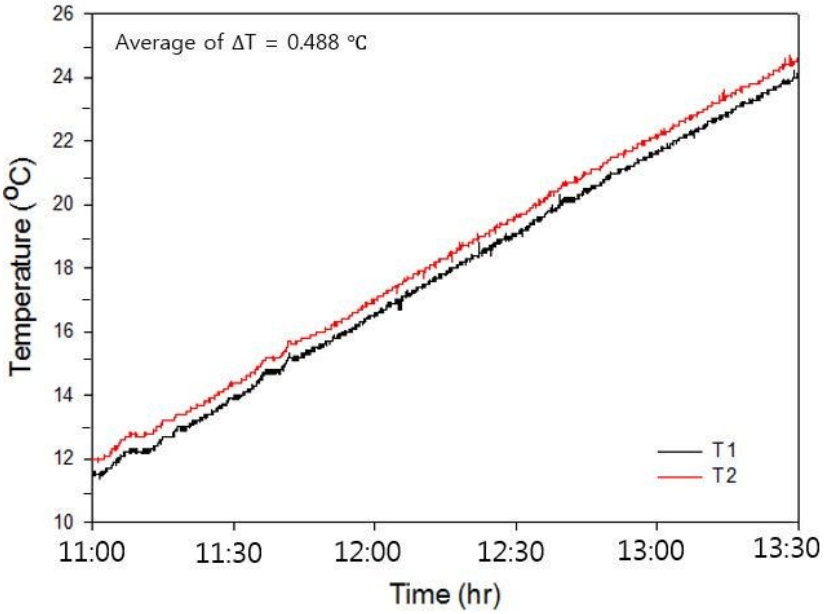
SPD-Fig. 5 Solar irradiation and the temperature rise of the pure water passing through Type 2 FPC with the red colored water passing through the transparent polyurethane tube. The experiment was carried out during 2.5 hours from 11 o'clock and the water temperature and the ambient air temperature were measured through T4 (the working fluid temperature) and T5 (the ambient temperature) shown in Fig. 6. During the last 30 minutes of the experiment, the solar irradiation were fluctuated due to the some repeated cloudy and clearing skies.



SPD-Fig. 6 Temperature difference between the pump inlet (TI) and outlet (T2) of Type 2 FPC with the red colored water passing through the transparent polyurethane tube.



SPD-Fig. 7 Solar irradiation and the temperature rise of the violet water passing through Type 2 FPC with the violet colored water passing through the transparent polyurethane tube. The experiment was carried out during 2.5 hours from 11 o'clock and the water temperature and the ambient air temperature were measured through T4 (the working fluid temperature) and T5 (the ambient temperature) shown in Fig. 6. During the entire experiment, the solar irradiation was nearly constant from 600 to 700 W/m^2.



SPD-Fig. 8 Temperature difference between the pump inlet (TI) and outlet (T2) of Type 2 FPC with the violet colored water passing through the transparent polyurethane tube.