Biogenic Synthesis of Green tea stabilized Ppy/SWCNT/CdS Nanocomposite, and its Affluent Applications; Photo catalytic degradation and Rheological behavior.

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Table S1. Account of Recently Published Works on Photo catalytic degradation Of Nanocomposites with Different Organic Pollutants

Nanocomposite	Model pollutant	Light source	Wavelength (nm)	Reference
TiO$_2$/MWCNT CdS/MWCNT TiO$_2$/CdS/MWCNT	Methylene Blue	96W UV lamp	-	[1]
CNT/ZnO/TiO$_2$	AO 7	UVP Pen Ray lamp	-	[2]
CNT/gold nanoparticles	Methylene Blue	UV lamp	254	[3]
Magnetic CNT/TiO$_2$	Carbamazepine and sulfamethoxazole	Xenon short arc lamp (80W)	254	[4]
Zn-CNT/O$_2$	4-chlorophenol	UV-vis lamp	385	[5]
TiO$_2$/SWCNT	Rhodamine B and Nitrobenzene	20W UV-vis lamp	365	[6]
Polypyrrole/CdS	Methylene Blue	500W Xenon lamp	664	[7]
Ag doped CdS/MWCNT	Crystal violet	125W UV lamp	365	[8]
Cu$_2$O/polypyrrole	Methyl orange	500W Xenon lamp	464	[9]
FeS$_2$-SnO$_2$/MWCNT	Methyl orange	11W Mercury lamp	254	[10]

Table S2. Summary of the Recently Published Literature On Rheological Properties of Oil Based Nanofluid

Nanofluid	Temp. °C	Shear rate (s^{-1})	Rheological Behavior	% Viscosity Change	Base fluid	Reference
TiO$_2$/MWCNT	50	0-700	Non-Newtonian	42%	5W50	[11]
MWCNT/TiO$_2$	25 and 50	666.5- 13,330	Non-Newtonian	-	SAE 50	[12]
MWCNT/ZnO	5-55	6331	Newtonian	-	5W50	[13]
MWCNT(COOH) MgO	25-50	670-8700	Non-Newtonian	75% drop	SAE 50	[14]
MWCNT/CuO	25-50	50666.5-9331	Non-Newtonian	29.47%	SAE-40	[15]
MWCNT-MgO	25-50	0-1200	Non-Newtonian	-	SAE40	[16]
ZnO–MWCNTs	5–55	--	Newtonian	85% drop	SAE 10W40	[17]

Comparing the present study with these previous ones, we obtain that maximum % drop in the viscosity of nanofluid is reported by the nanocomposite PSC with base fluid Castrol class: 15W 40.

Table S3. Average particle size of PSC nanocomposite

Peak position 2θ (degree)	FWHM (Radians)	Particle Size, D(nm)	Average Particle Size, (nm)
21.90002	0.287	27.68029569	
25.7294	23.70572	0.335118616	
25.73077	6.46779	1.228275511	5.272958422
31.0969	4.81081	1.65132275	
50.09594	23.89494	0.33245775	

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