

Table 1. The properties of the PPIX, PPIX-PBA complex, and the H- and J- aggregates.

aggregate type		pH	absorption maximum / nm				emission / nm		slip angle θ
			Soret band	Q-bands					
PPIX			405	506	539	574	630	631 698	
PBA-PPIX (K ⁺)			405	506	539	574	630	631 698	
PBA-PPIX (Na ⁺)			405	506	539	574	630	631 698	
H-aggregate	this work	9	380	509	579	619	655	653 683	90
H-aggregate	ref 50	12	382	510	545	578	626	624 684	90
H-aggregate	ref 51		384	512	582	639			
J-aggregate	this work	7	357 457	531	588	632	640	696	23
J-aggregate	ref 50	5	352 450						38 or 52
J-aggregate	ref 51		360 445	527	585	640			
PBA-H (H + PBA)			412	512	549	575	629	632 698	61
PBA-J (J + PBA)			412	513	546	578	633	632 698	61
H ₄ DPB		ref 56	379	511	540	580	632		