

Materiali organici
sostenibili

Materiali

- Molecole e polimeri coniugati
- Coloranti e pigmenti



Metodi

- reazioni in ambienti micro e nanoeterogenei
- reazioni di arilazine diretta



Target attuali



Celle solari organiche

- Pigmenti latenti
- Accettori non fullerenici (ENI)



Transistor organici a strato sottile

- Derivati a core benzotibenzotiofenico (BTBT)



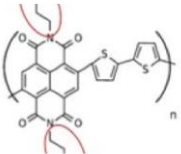
OLEDs

- Sviluppo di polimeri conduttori emissivi ottenuti tramite processi green



Concentratori solari organici

- Sintesi sostenibili di derivati ad elevato Stokes-Shift
- Fuorofores a base perilenica



Generatori termoelettrici organici

- Polimeri conduttori ad elevata conducibilità elettronica (IIT)



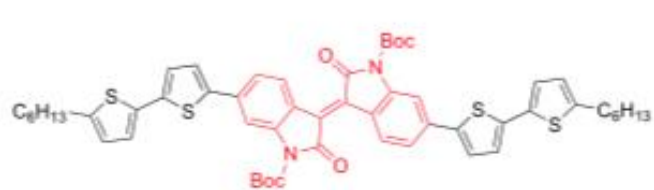
Dispositivi elettrocromici organici

Flusso di lavoro

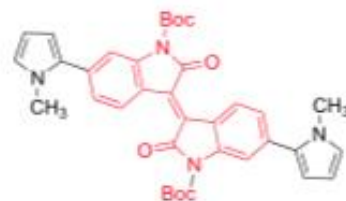


Test funzionale in dispositivo

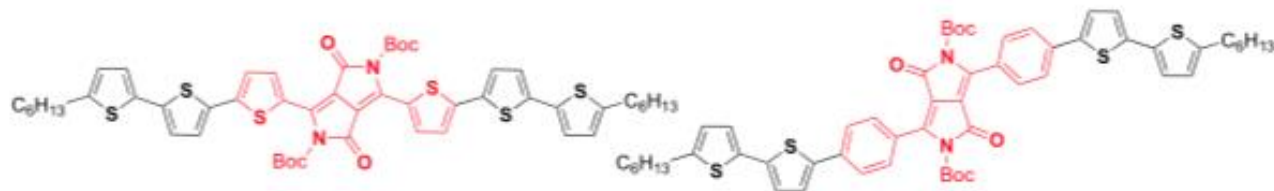
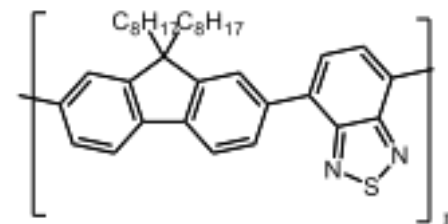
Strutture



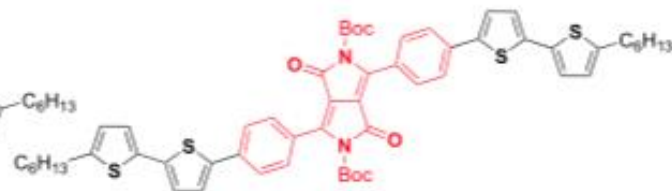
5 (85 %)



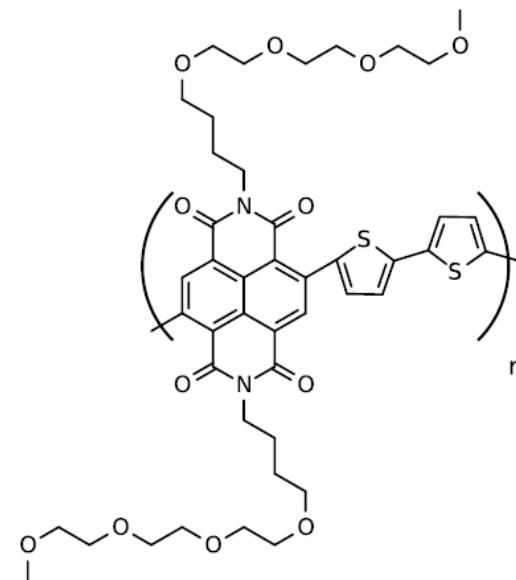
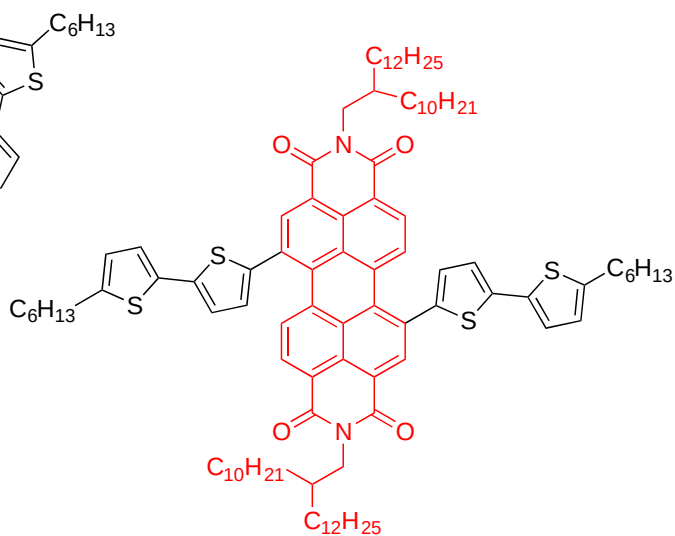
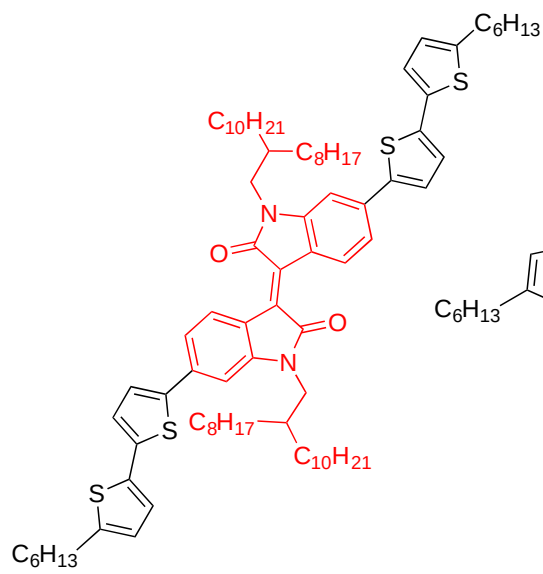
6 (50 %)



7 (77 %)



8 (80 %)



Metodi

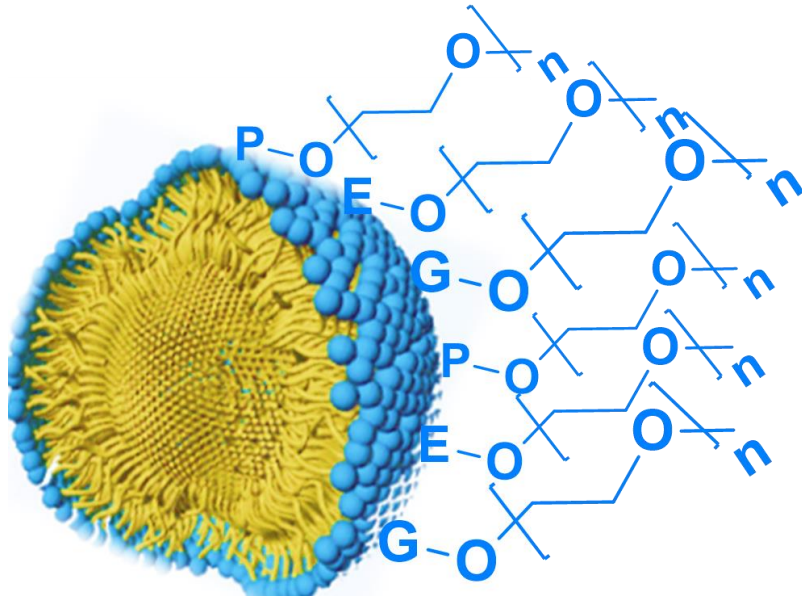
Standard organic chemistry procedures

- Toxic solvents
- Long reaction time
- High temperature
- High palladium loading
- Controlled environment
- Complex purification

Nature's way

- ☐ Water
- ☐ Fast reactions
- ☐ Room temperature
- ☐ Traces of metals
- ☐ In air
- ☐ No purification

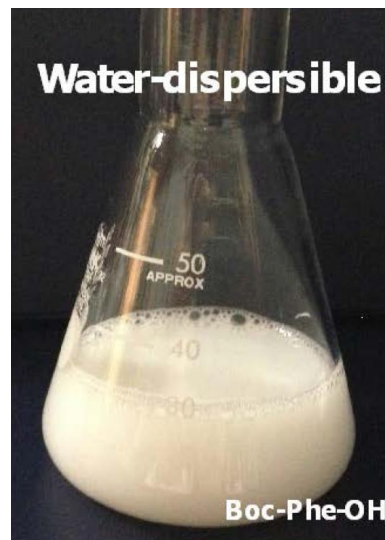
Sistemi a interfaccia diffusa



micelle

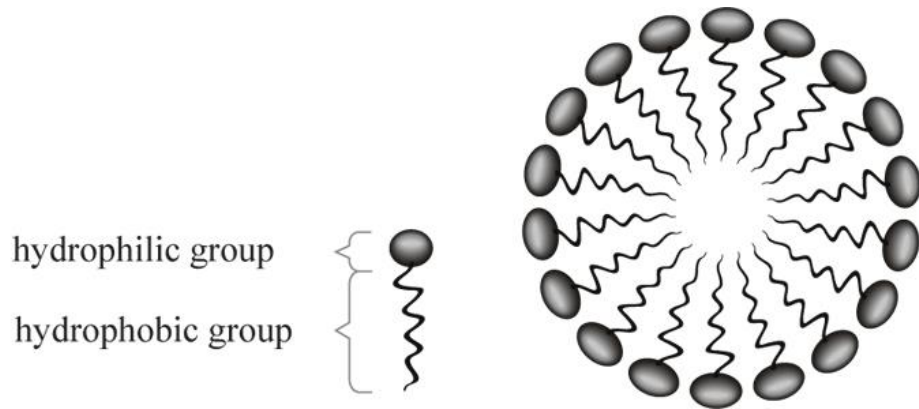


emulsioni



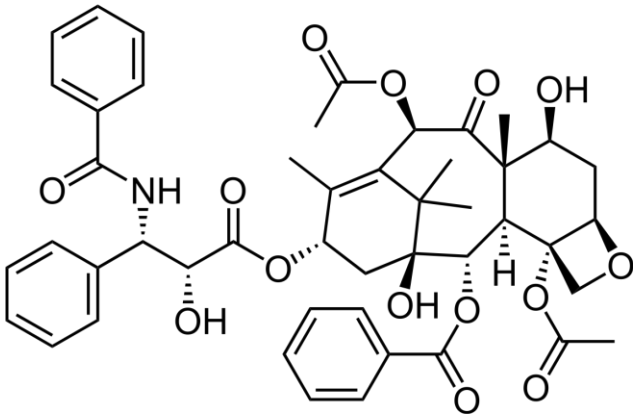
dispersioni

Chimica delle formulazioni



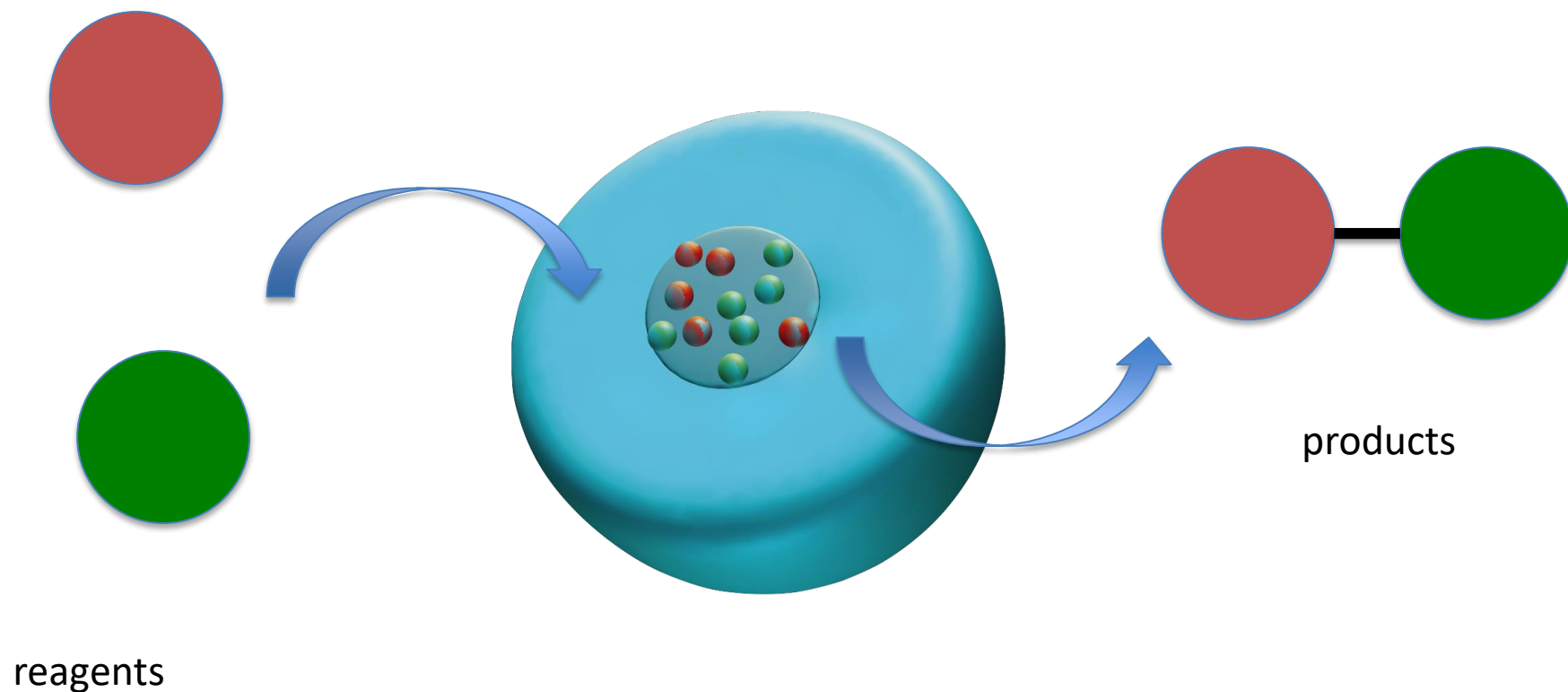
Micelles provides a suitable environment in water for hydrophobic materials

Taxol, water insoluble

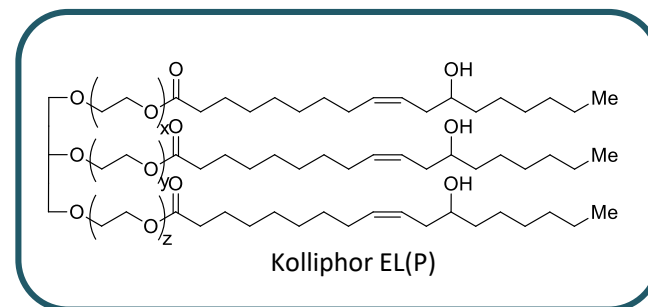
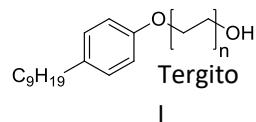
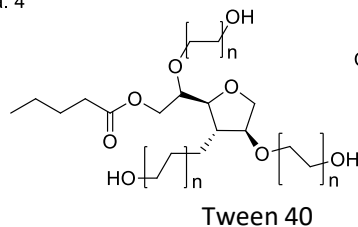
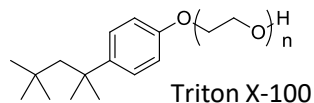


Paraclitaxel, a waterborne micellar formulation of taxol in water

Chimica delle formulazioni....reattive



- Lipshutz, B.H. & Abela, A.R., 2008. Micellar Catalysis of Suzuki–Miyaura Cross-Couplings with Heteroaromatics in Water. *Organic Letters*, 10(23), pp.5329–5332.
- Lipshutz, B.H. et al., 2013. On the Way Towards Greener Transition-Metal-Catalyzed Processes as Quantified by E Factors. *Angewandte Chemie International Edition*, 52(42), pp.10952–10958.
- Lipshutz, B.H. et al., 2011. TPGS-750-M: A Second-Generation Amphiphile for Metal-Catalyzed Cross-Couplings in Water at Room Temperature. *The Journal of Organic Chemistry*, 76(11), pp.4379–4391.
- Prof Bruce H Lipshutz, D.S.G., 2012. “Designer-”Surfactant-Enabled Cross-Couplings in Water at Room Temperature. *Aldrichimica acta*, 45(1), p.3.

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Brij-30 ca. 4

TPGS-750-M

