DESIGN AND SYNTHESIS OF FULLERENE RECEPTORS WITH DIFFERENT CONFORMATIONAL FLEXIBILITY TO EXPLORE THEIR BINDING AFFINITY WITH FULLERENES

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Fullerenes are carbon structures formed by carbon atoms arranged in alternating pentagons and hexagons that exhibit interesting properties in the field of materials. The development of fullerene receptor molecules can significantly improve these properties, for example, by enabling charge separation through the formation of a supramolecular adduct, a useful property in photoelectric systems. [1,2].

This work focuses on the design and synthesis of fullerene receptors based on a system of six coranulene units and a benzene core, varying the flexibility of the receptor to analyze its ability to bind fullerenes. This study provides valuable information for the future design and optimization of fullerene receptors with potential applications in the capture and separation of fullerenes, as well as in the formation of new materials.

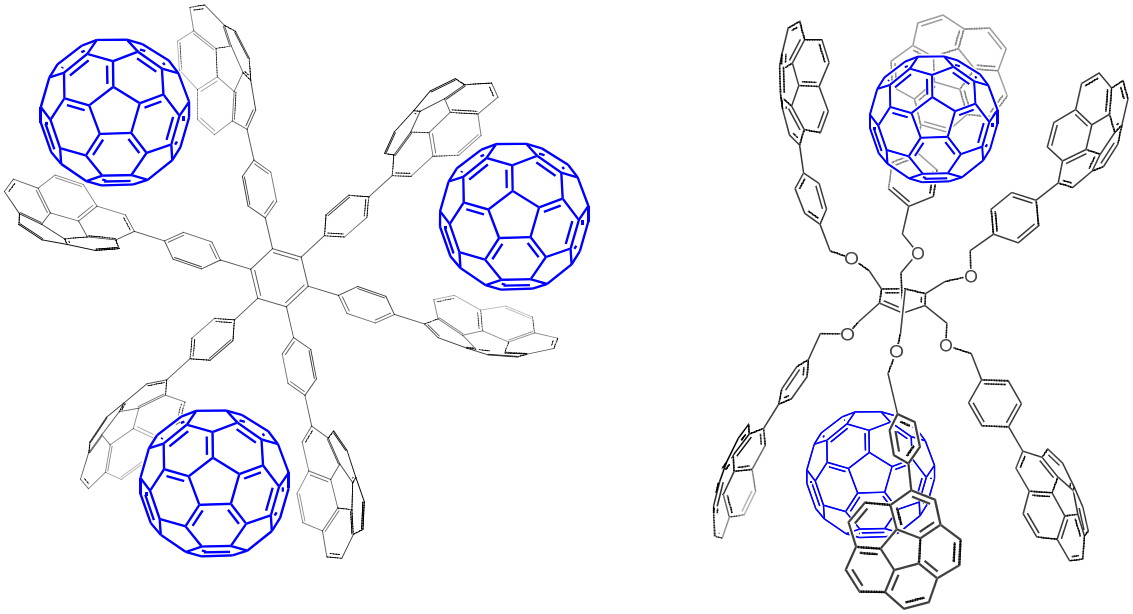

Figure 1. Molecular tweezers developed in this work for the recognition of fullerenes by forming equilibria of different stoichiometries.

[1] S. Ferrero, H. Barbero, D. Miguel, R. García-Rodríguez and C. M. Álvarez, *J. Org. Chem.*, 2020, **85**, 4918–4926.

[2] Sacristán-Martín, H. Barbero, S. Ferrero, D. Miguel, R. García-Rodríguez and C. M. Álvarez, *Chem. Commun.*, 2021, **57**, 11013–11016.