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Bulky hosts composed of natural chiral compounds may be used for enantioselective crystallisation experiments. Hence, series of optically active terpenoid hosts containing camphor head groups and different more or less rigid central units, have been synthesized and tested for enantioselective inclusion of chiral compounds1. The efficiency of the e.g. wheel-and-axe type hosts in the recognition of chiral guests is originated from the fine harmony of intermolecular interactions and spatial constrains.

\[
\text{RR} \quad \text{OH} \\
\text{R} = \begin{array}{c}
\text{O} \\
\text{O}
\end{array}
\text{OO} + \frac{+}{+}
\text{H}
\]

Crystallisation of the optically active diol host (H) from a dioxane solution of the racemic methyl-\(\beta\)-propiolactone (G1) exhibits selectivity and form a ternary inclusion crystal. The dioxane solvent (G2) is included in the crystal with 1:1:1 H:G1:G2 stoichiometric ratio. The guest molecules have special positions: the ring carbon and oxygen atoms of the lactone are placed on the twofold axis at \(z=0.5\), while the dioxane ring is located around the twofold axis at \(z=0\). Both guests are disordered, each occupies two disorder sites with equal probability. The camphor head groups of the host are held tight in the crystal, whereas the central phenyl ring occur in two disorder positions, which form the dihedral angle of 28.5°.

In the crystal O-H…O bonds link the host molecules into infinite chains. The methyl-\(\beta\)-propiolactone guest is included in a hydrophobic cage surrounded by camphor head groups. The cage is maintained by repulsive interactions thus, emphasising the importance of spatial requirements in stereoselective inclusion formation.


