

# Preferential adhesion of silver nanoparticles onto crystal faces of

## $\beta$ -Cyclodextrin/carboxylic acids inclusion compounds

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$\beta$ -Cyclodextrin ( $\beta$ -CD) inclusion compounds containing the carboxylic acids (octanoic, decanoic, lauric or dodecanoic, myristic or tetradecanoic, palmitic or hexadecanoic and stearic or octadecanoic) as guests were synthesized and applied for preferential adhesion of silver nanoparticles (AgNPs). The binding affinity depends of the chain length of the respective guest and is most efficient for octanoic and decanoic acids. The immobilization of nanoparticles is caused by the spatial replacing of the stabilized shell of the nanoparticles by COOH groups of the guests molecules, located at the entrance of cavity of  $\beta$ -CD, corresponding to the {001} crystal plane. Crystalline coating with nanoparticles provides a means of storing of AgNPs on solids state without aggregation. The stabilization of the particles on the surface is valid for a given length and ordering of the guest in the cavities of the  $\beta$ -CD being the octanoic and decanoic acid the most appropriated.

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