Novelty of the work

- For the first time, nano-porous MCM-48 and zeolitic MCM-22 were used as supports for anchoring silicotungstates.
- The challenging task and necessity for the production of alternative fuel additives by converting judiciously selected bioplatform molecules - levulinic acid, succinic acid and glycerol, was addressed.
- An evolution in the energy transition was directed for biomass conversion via green and ecofriendly catalytic routes.
- Green and sustainable catalytic routes for esterification and acetalization reactions were instituted with recycling ability, thus contributing effectively in the cost reduction of processes as well as making the overall procedures environmentally benign.