Polymorphism Control of a Schiff base *via* solvent-free and solution based synthesis

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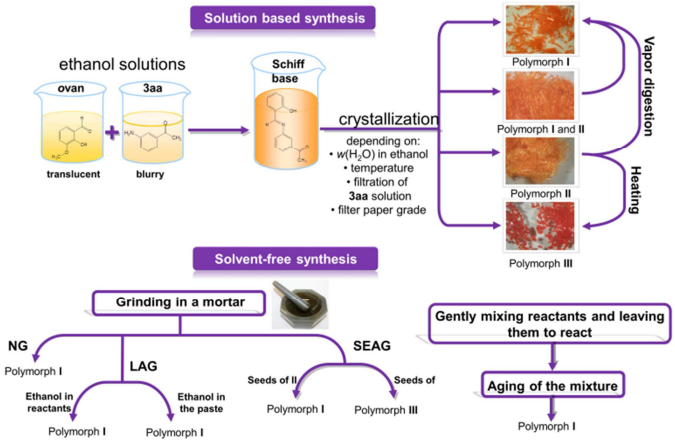
Schiff bases can be effortlessly obtained by condensation of aldehydes (or ketones) and primary amines[1] and thereafter used as ligands in coordination chemistry of transition metals.[2] On the other hand, the research of prosperous methods of synthesis such are mechanochemical ones provides new insights into faster, environmentally more friendly and economically more acceptable ways to prepare new but also already known compounds.[3] A study of Cinčić *et al* had recently revealed that the relative humidity (RH) plays an important role in the formation of the Schiff bases in the solid state and that the moisture actually acts as a catalyst in this solid state reaction.[4] Furthermore, it was also shown lately that the route of the mechanochemical reaction does not have to be the same when grinding is used and when the product is obtained merely by mixing reactants with a spatula and leaving the reaction mixture to age.[5] All the above mentioned show that numerous influences on the result of such a simple reaction are jet to be discovered.

Herein, we report a study of the dependence of the water amount in ethanol used as solvent and temperature during crystallization on the result of the synthesis of three polymorphic forms of a Schiff base derived from *o*-vanillin and 3-aminoacetophenone (***ovan3aa***). The mechanochemical methods of preparation: neat grinding (**NG**), liquid-assisted grinding (**LAG**) and seeding-assisted grinding (**SEAG**) and vapor digestion were also thoroughly investigated (Scheme 1).



Scheme 1 Factors influencing polymorphism of (***ovan3aa***).

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