

# Nanotechnology's Potential for Agrochemistry

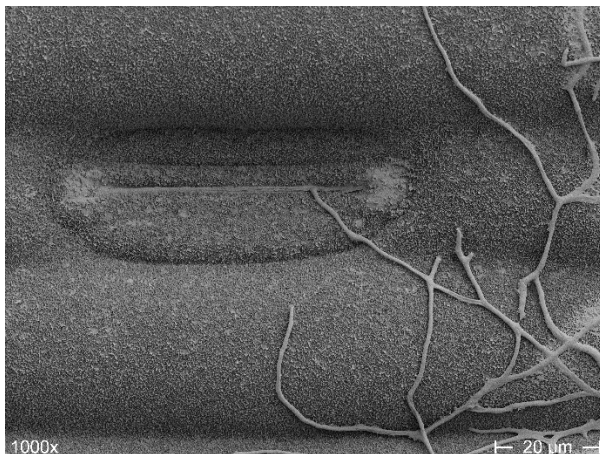
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There is an increasing interest in the use of nano-technology in the field of agrochemistry, either as an improvement to, or an alternative for, crop protection chemicals. Especially the formulation development of agrochemicals (i.e. actives) took advantage of the many promises that nanotechnology held for pharmaceutical drug delivery. However, it is still not clear in how far these concepts can provide benefits that outweigh potential disadvantages in agrochemical products that aim to deliver active ingredients to very different target organisms and environments. The theoretical benefits of nano-formulations (phase domains below one micron) will be discussed and compared to literature results and the performance of experimental samples with Syngenta's active ingredients at nano-scale. In the first part, possible improvements to foliar applied products (e.g. fungicides, Figure 1) will be considered and, in the second, to soil or seed applied compounds.



**Figure 1:** Electron microscopy image of fungi-hyphae (*Septoria tritici*) infesting winter wheat (*Triticum aestivum*) through stomata (gas exchange pore in leaves). Can nano-formulated fungicides treat the disease more effectively?