## Nano World Summit: Current and Future Perspectives

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## Synthesis of herbal compound encapsulated nanoparticles for delivery to liver and brain

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Herbal nanomedicine is the well proven medical application of nanotechnology. Nanomedicine ranges from the medical applications of nanomaterials, to nanobiosensors. Current problems for herbal nanomedicine involve understanding the issues related to poor bioavailability of herbal compounds, toxicity and environmental impact of nanoscale materials. Use of nanotechnology in synthesis of herbal nanomedicine refers to approaches, formulations, technologies, and systems for transporting a herbal compound in the body as needed to safely achieve its desired therapeutic effect. Herbal nanoformulations modify drug release profile, absorption, distribution and elimination for the benefit of improving product efficacy and safety, as well as patient convenience and compliance. Many medications using plant secondary metabolite or natural compound such as curcumin and Qurectein, and Thymoquinone based drugs, in general may not be delivered using normal routes because they might be susceptible to enzymatic degradation or cannot be absorbed into the systemic circulation efficiently due to poor solubility in water, molecular size and charge issues to be therapeutically effective. For this reason, many herbal medicines have to be delivered using the concept of nanomedicine. Current efforts in the area of drug herbal nanomedicine include the development of targeted delivery systems in which the herbal molecule is only active in the target area of the body (for example, in liver tissues) and characterisation of such formulation using TEM, SEM and DLS.

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