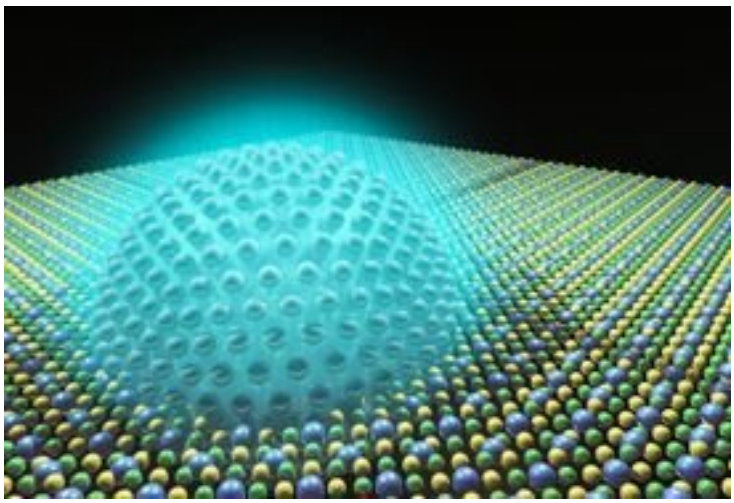
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Mango leaves used for developing fluorescent quantum dots

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The quantum dots can be used for bioimaging and measuring intracellular temperature **The quantum dots can be used for bioimaging and measuring intracellular temperature**



Researchers from the Indian Institute of Technology (IIT) Bombay have been able to produce cheap probes for bioimaging and for intracellular temperature sensing by developing fluorescent graphene quantum dots or nanocrystals of semiconductor material from mango leaves.

These quantum dots synthesised from mango leaves are biocompatible, have excellent photostability and show no cellular toxicity.
The mango leaves were cut into tiny pieces and frozen using liquid nitrogen. The frozen leaves were crushed into powder and dipped in alcohol. The extract was centrifuged, the supernatant was evaporated and then heated in a microwave for five minutes to get a fine powder.

The quantum dots, 2-8 nanometre in size, were found to emit red luminescence when excited by UV light. These graphene quantum dots can be used as a nanothermometre. Besides measuring intracellular temperature increase, they can also be used for measuring temperature increase in cancer cells.