The Best Affordable Alternative Nanofertiliser

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The project aimed to use halloysite clays as naturally occurring nanoparticles in the making of an affordable and efficient eco-friendly nanofertiliser.Research was conducted in many stages which included a survey and investigation on the deposits of halloysite clays in Zimbabwe. The halloysite clays used,obtained from Hwedza, about 120km from Harare,were first characterised and then dissolved in water, followed by dispersion, reduction and flocculation to obtain purified halloysite nanoparticles.The particles were oven dried at 105 degrees Celsius and then heated for nutrient absorption and then were mixed with various conventional fertiliser forms to make the nanofertilisers that were tested on various plants.The most efficient nanofertilizer contained the halloysite nanoparticles powder and inorganic conventional fertilisers in the ratio 1:4 respectively. The nanoparticles exclusive, also showed a noticeable efficiency compared to the inorganic fertilisers which produced the least results. The nanofertilser greatly increased the growth of leaves and roots, greenness of leaves and yields of crop plants and proved to have high potential for achieving very economic and sustainable agriculture, especially in developing countries.

Awards Won: