

## GiZiDent: Novel enhanced conventional glass ionomer cement

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Dental material, conventional GIC (cGIC) is well liked because it is easy to use, anti-cariogenic due to fluorides release and good bond to tooth structure. Anyway, the current available cGIC in the market has limited use due to its relatively inferior mechanical, physical and aesthetics properties. Recently, a novel version of improved cGIC has been successfully produced by Malaysian researcher with a prototype named GiZiDent. It was fabricated from novel nano  $\text{ZrO}_2$ - $\text{SiO}_2$ -HA powder that was produced using one-pot sol-gel synthesis technique. The fabrication was by incorporating nano  $\text{ZrO}_2$ - $\text{SiO}_2$ -HA compound with special technique and specific ratios into conventional GIC which produced GIC -nano  $\text{ZrO}_2$ - $\text{SiO}_2$ -HA or the trade name as: GiZiDent.

Characterization studies using SEM dot mapping, TEM micrograph and XRD show that the particles in the powder were homogenously dispersed throughout this invention of GIC with some degree of molecular interaction. The mechanical properties such as Vickers hardness, flexural and compressive strength were enhanced achieving better than the level of ISO standard and the surface roughness profile were identical to cGIC. This enhanced cGIC exhibited a significantly lower water sorption but higher solubility than cGIC and it also exhibited a significant color stability together with fluoride release improvement. It show significantly lower cytotoxicity than cGIC after 72h. GiZiDent with all the improvement can be used in wider scope as a restorative dental material at high stress bearing areas, for restoration of both deciduous and permanent dentition, as core build-up, aesthetics anterior restoration and stronger Atraumatic Restorative Treatment material. This will open more option and better material for dentistry in future.

## Biography

Wan Zaripah Wan Bakar is an academician and clinical specialist (Prosthodontist) at Universiti Sains Malaysia. She has done several researches related to dentistry in area of restorative/prosthodontics, endodontics and dental material. She also involved in education studies and staff improvement especially about interactive lecture. Once a while she was invited to give a speech at local and international conferences or webinars.