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## Influence of moisture on crystalline properties of sorghum starch

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**Statement of the Problem:** The awareness of coeliac disease and other sensitivities to gluten has caused increased demand for wheat-free food products around the world. As an alternative for the production of novel starches, recently there has been growing interest in sorghum as a potential source.

**Methodology & Theoretical Orientation:** Starch granules were suspended in water to form slurry using gentle stirring. Analyses were performed on a Bruker Microcalix instrument using 50 W Cu K radiation at a wavelength of 1.54 Å. Measurements were carried out under vacuum, and scattered X-rays were detected using a Pilatus 100 k detector. Hydrated starch samples were weighed and placed into glass capillary tubes (Hilgenberg, Germany). Scattering measurements were performed with 30 minutes exposure time, and transmission measurements were carried out over 30s. Moisture content, crystallinity and particle size distribution were also evaluated using oven drying, X-ray diffraction and laser diffraction, respectively.

**Findings:** The storage of the slurry in the presence of moisture strongly affects the physical changes and the orientation of the crystalline and amorphous layers. This was observed by variation in the intensity using SAXS and X-ray patterns.

**Conclusion & Significance:** The implications of the findings warrant further studies, which extend to starches from a range of cereal grains

### Biography

Sana Subzwari is currently a final year PhD student at RMIT University in Melbourne. Her research work involves sorghum as an alternative source of starch: characterization and properties for food applications. In 2011, she completed her master's in Biotechnology from Deakin University. Subsequently, she worked with Mentholatum Australasia, and was involved in several R&D projects on formulation of topical heating rubs. In addition, she has demonstrated her passion for teaching by mentoring under-graduates and post-graduate students

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