



q-calibration dried chicken tendon



Background

Chicken tendon, but also other tissue containing a lot of collagen, such as rat tail and turkey tendon, are often used for the calibration of the smaller angles. For dry material, the peaks obtained by radial averaging of the scattering pattern fall in the range between 0.009 and 0.15 \AA^{-1} . The principle peak, corresponding to a d -spacing of 653 \AA , appears at 0.0096 \AA^{-1} .^{1,2} The anisotropic scattering pattern (Fig 1A) is a result of the alignment of collagen fibrils that make up the tendon, as is depicted in the insert (Fig 1B).

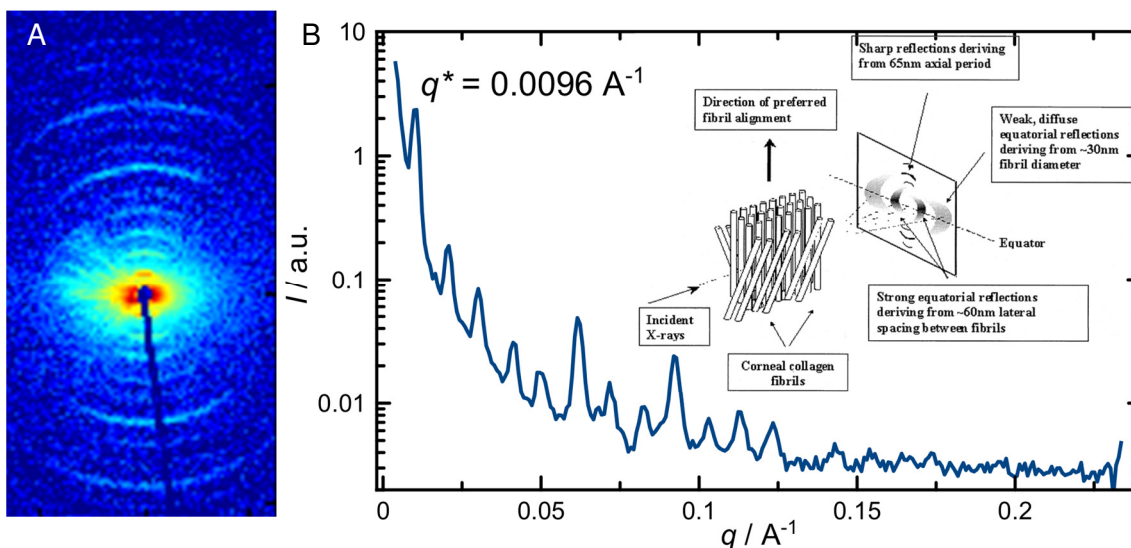


Fig 1. A) 2 dimensional scattering pattern of dried chicken tendon, B) radially average of figure 1A, the insert was adapted from ref 1.

Concluding remarks

As in any natural material, there might be some variation between samples and the use of wet, or even just moist material will result in a larger d -spacing due to swelling of the fibrils.^{3,4} Therefore the use of chicken tendon does not always result in a reliable q -calibration.

References and further reading

1. Boote, C., Dennis, S., Newton, R. H., Puri, H. & Meek, K. M. Collagen Fibrils Appear More Closely Packed in the Prepuillary Cornea: Optical and Biomechanical Implications. *Investig. Ophthalmology Vis. Sci.* **44**, 2941 (2003).
2. Masunaga, H. *et al.* Multipurpose soft-material SAXS/WAXS/GISAXS beamline at SPring-8. *Polym. J.* **43**, 471–477 (2011).
3. <http://www.esrf.eu/UsersAndScience/Experiments/CRG/BM26/SaxsWaxs/Rattail>
4. <https://www.elettra.trieste.it/files/Documents/SAXS/Annual%20Reports/anrepsaxs01.pdf>