Structure of different kinds of animal skin which can be used as model membrane for medical applications

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In the last annual report we have shown that the techniques GISAXS and SAXS can be successfully applied for studying the structure of model membranes from shed snake skins as well as polymers used as biosensor. In this present report we will show the results concerning the skin-structure of other animals e.g. pig skin, which is also typical for being used as a model membrane in the pharmaceutical and medical fields. The comparison between different types of animal and human skins shows that some skins of animals have similar scattering pattern (significant peak) as the human skin whilst some have not. The scattering pattern of human stratum corneum from HASYLAB shows a significant peak at $Q = 1.105 \text{ nm}^{-1}$, which corresponds to the repeat distance ($d$) = 5.686 nm. It can be deduced from this scattering pattern that the structure of human skin is well ordered which is shown by the significant peak as demonstrated by an arrow in Fig. 1. Some other types of animals have also a significant peak (arrow) but in the other Q-region. However, this may be the indication that the orientation of the inner structure (lipid and protein) is similar but not the same. These results are a good basis for the selection of the suitable model skin for the medical application.

![Figure 1: SAXS-scattering patterns of different skins from various types of animals in comparison with human skin.](image)

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References