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Dehumidifying drying of alpaca fibre and its impact on processing

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ABSTRACT Drying is very sensitive practice to maintain the proper quality with respect to strength, color, and glossiness of the alpaca fibre. Alpaca fibre needs to be washed and dried prior to mechanical processing. The main component of the alpaca fibre is a protein called Keratin, which is heat sensitive and a biopolymer. It is important to dry the washed fibre in such a way that the internal and external structure of the fibre should not be damaged. It is also important not to dehydrate the fibre by taking out the internal water molecules present in the structure to avoid the shrinkage of the fibre. Many of the processors are adopting a wool drying methodology for alpaca fleece; however, the surface characteristics differ for each other. No information for standard and effective drying process is available for better drying of washed alpaca fibre. Therefore, an attempt has been made to develop a simplified drying system. Alpaca farming is emerging industries in North America, generally taken care by female farmers. Farmers can wash, dry and store their fleece prior to sending for processing to mills in Canada. An attempt has been made to dry the fibre with dehumidifying drying system involving a dehumidifier. It was found that drying temperature in between 35 to 50°C is suitable to dry the alpaca fibre without damaging the surface characteristics. The dried fibre was found suitable for processing in Belfast mini mills to produce batting, roving and yarn.

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