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# Valorisation of chicken feathers: a review on recycling and recovery route—current status and future prospects

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ABSTRACT:

Worldwide, the poultry meat processing industry generates large quantities of feather by-products that amount to 40 × 109 kg annually. The feathers are considered wastes although small amounts are often processed into valuable products such as feather meal and fertilisers. The remaining waste is disposed of by incineration or by burial in controlled landfills. Improper disposal of these biological wastes contributes to environmental damage and transmission of diseases. Economic pressures, environmental pressures, increasing interest in using renewable and sustainable raw materials, and the need to decrease reliance on non-renewable petroleum resources behove the industry to find better ways of dealing with waste feathers. A closer look at the structure and composition of feathers shows that the whole part of a chicken feather (rachis and barb) can be used as a source of a pure structural protein called keratin which can be exploited for conversion into a number of high-value bioproducts. Additionally, several technologies can be used to convert other biological components of feathers into high value-added products. Thus, conversion of the waste into valuable products can make feathers an attractive raw material for the production of bioproducts. In this review, possible applications

of chicken feathers in a variety of technologies and products are discussed. Thus, using waste feathers as a valuable resource can help the poultry industry to dispose of the waste feathers in an environmentally sustainable manner that also generates extra income for the industry. Their valorisation can result in their sustainable conversion into high-value materials and products on the proviso of existence or development of cost-effective technologies for converting this waste into the useful products.