



Council for Scientific and Industrial Research (CSIR)

Natural Resources and the Environment (NRE)

Durban, South Africa

www.csir.co.za

Title:	Valorisation of waste chicken feathers
Abstract:	<p>The disposal of waste in an economically and environmentally acceptable manner is a critical issue facing most modern industries. This is mainly due to increased difficulties in locating disposal works and complying with stringent environmental quality requirements imposed by waste management and disposal legislation. Worldwide, the poultry-processing industry generates large quantities of feather by-products that amount to 40 billion kilograms annually. The feathers are considered wastes although small amounts are often processed into valuable products such as feather meal and fertilizers. 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 (quill and fibre) 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 bio products. Additionally, a number of 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 production of bio products.</p>
Lead institution:	CSIR
Partner institutions:	UKZN, Green Bird
Principal Investigator:	Prof. Bruce Sithole
Student:	Tamrat Tesfaye
Degree:	PhD
Funded by:	CSIR, DST Waste Roadmap
Start date:	Sept 2014
End date:	Sept 2017
Feedstock:	Chicken waste feathers
Value chain products:	Keratin protein, keratin fibres
Geographic source of the feedstock:	Chicken poultry industry across South Africa