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BIO-PLASTIC FROM WASTE CHICKEN FEATHERS

CHANDRA MATRICULATION HIGHER SECONDARY SCHOOL

PRINCIPAL

MRS .M.UMA

BIO-PLASTIC FROM WASTE CHICK
FEATHERS

Project submitted by

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INTRODUCTION

- Presence of keratin in the waste chicken feathers can be used to produce bio plastic . Keratin is a fibrous protein in structural material making up hairs, claws, feathers and the outer layer of the skin.
- Keratin is a non burning hydrophilic and bio degradable which is can be applicable via chemical processing.
- Extraction of keratin from waste chicken feathers can be converted into a useful product.

Collection of feathers

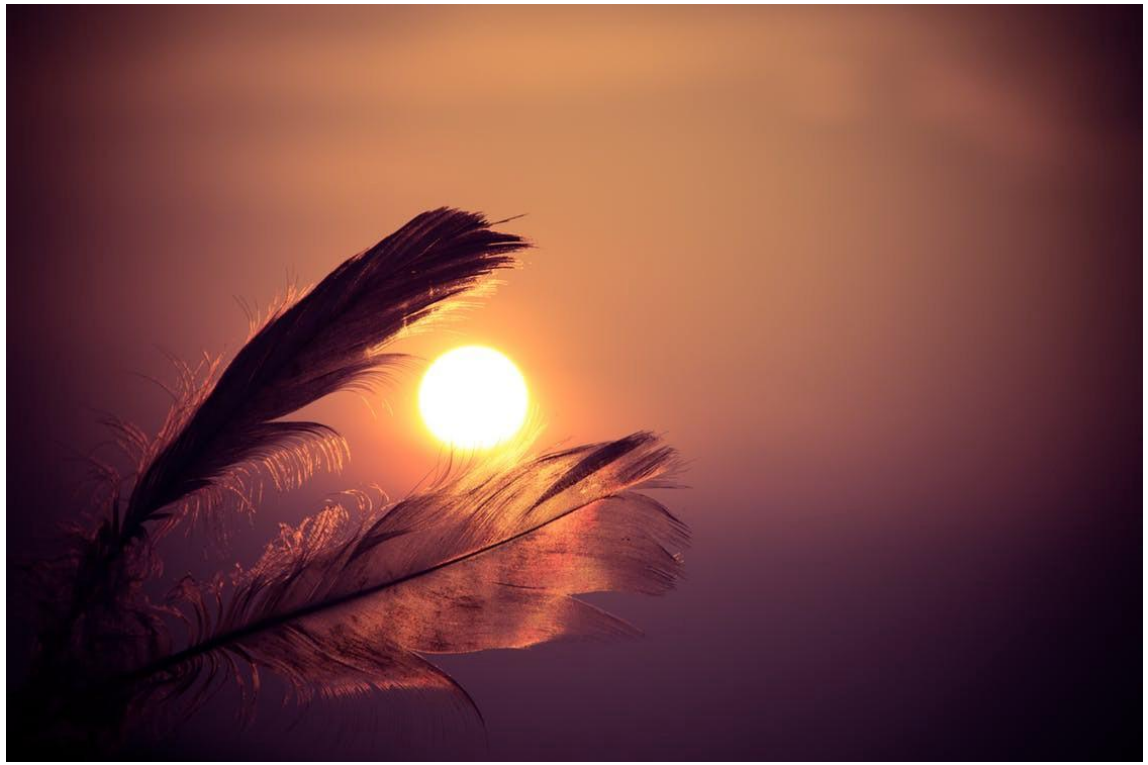
- We have collected many samples from the nearby poultry in Coimbatore to which we visited. Those sample were processed by treating it with neutral soap solution

Washing of feathers

- The collected samples were washed and treated in water, neutral soap solution and sodium chloride. (Nacl).
- By this the excess amount of blood was removed and the ph of raw material was neutralized to 7.

Drying of feathers

- The washed chicken feathers were sun dried for three days and the feathers are finely chopped to powdery state.



Extraction of keratin

- 5g of chopped chicken feathers was added in 100ml of 0.5M sodium sulphide (Na_2S) and 2M of sodium hydroxide(NaOH) .
- This was kept for stirring in Rotary incubator for two hours in which room temperature was maintained.

Extraction of supernatant

- The sample was centrifuged at 10,000 rpm for 5 minutes
- The supernatant was extracted carefully using a micropipette and transferred to a fresh falcon tube .
- 2N of HCl was added slowly until making the pH of the extract to be 4.2.

Final product

- The extract was transferred to a petri dish and kept in hot air oven at $50^{o}C$ for one hour drying .
- The product obtained was a thin layer of bio-plastic extracted from waste chicken feathers

Conclusion

- The study was conducted for the Extraction of keratin protein using sodium sulphide which was the most appropriate reducing agent .
- Bio plastic can reduce the pollution caused by the usage of synthetic based plastic products.

Future plans

- Bio-degradability of the product in .

1. soil
2. Water

- Tensile strength test

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THANK YOU

EVERY ENDING IS REALLY JUST A NEW BEGINNING