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ABSTRACT



Figure 1: A-Fresh and B-dried *R. argentea*

Rastrineobola argentea is a traditionally important and nutritious fish species for food security and socio-economic development of many local communities in Kenya.

Industrially-packaged and sun-dried *R. argentea* were sampled randomly from five supermarkets and five open-air markets within Eldoret town and evaluated for total bacterial load and *S. aureus*.

Bacterial load was significantly higher ($p < 0.05$) in sun-dried samples than in industrially packaged samples.

For food security to be realized, *R. argentea* need to be properly handled, dried and stored to reduce bacterial contamination.

MATERIALS AND METHODS

Study area and sample collection

The study was conducted in Eldoret town.

Samples of *R. argentea* were collected randomly from five supermarkets and five open-air markets

Sample preparation

R. argentea samples were macerated and suspensions prepared by dissolving about 1gram of each sample in sterile distilled water.

Cultivation, enumeration and identification of microbes

Serial dilutions of each *R. argentea* suspension were plated on Nutrient Agar (NA) plates.

Cultures were incubated at 35°C for 24 hours after which the number of colonies were counted.

Colonies on NA plates were sub-cultured onto Mannitol Salt Agar and checked for catalase production to identify *S. aureus* bacteria.



Figure 2: A-Drying and B-Selling of *R. argentea* at the shores of Lake Victoria

RESULTS

The levels of *S. aureus* and total microbial counts in sun dried samples were generally higher than those in industrially dried samples.

A paired t- test analysis revealed that *S. aureus* levels in the two sets of samples were significantly different at $p < 0.05$ (Fig. 3 and 4).

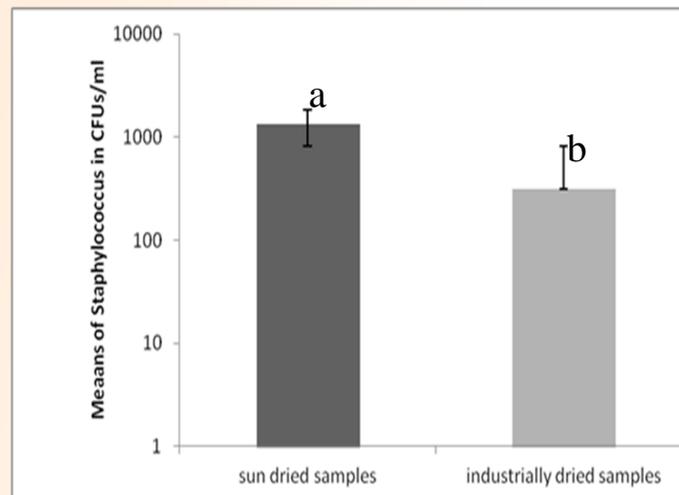


Figure 3: Means of *S. aureus* load in sun dried and industrially-dried *R. argentea* samples. Columns with different letters are significantly different at $p < 0.05$ after the Fishers LSD test

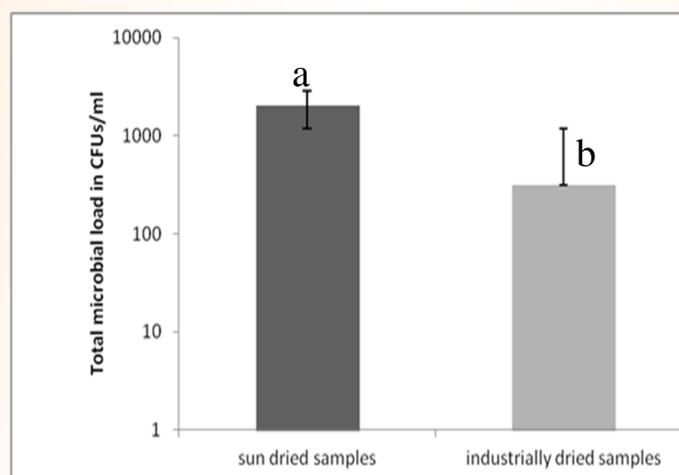


Figure 4: Means of total microbial counts in sun-dried and industrially-dried *R. argentea* samples. Columns with different letters are significantly different at $p < 0.05$ after the Fishers LSD test

DISCUSSION

The high microbial numbers in sun-dried *R. argentea* was attributed to possibility of extensive contamination by handlers during drying and storage as illustrated in Figure 2.

Similar results were also reported by Mashood and TengkuHaziyaamin (2012).

It has been reported that fish is likely to be contaminated with organisms associated with man during handling (Brown, 2004).

S. aureus has also been isolated from other types of fish such as mud-fish and catfish (Budiati *et al.*, 2011).

Table 1: Nutritional value per 100 grams of *R. argentea*

Type	Quantity	Type	Quantity
Calories	198 g	Protein	17 g
Total fat	10 g	Vitamin A	3%
Saturated fat	2 g	Vitamin C	71%
Cholesterol	0 g	Calcium	19%
Fiber	3 g	Iron	17%
Sodium	185.5 g	Sugars	5 g

CONCLUSION & RECOMMENDATION

Sun-dried *R. argentea* had significantly higher *S. aureus* and total microbial counts than the industrially packed *R. argentea*.

For food security to be realized, *R. argentea* need to be properly handled, dried and stored in order to reduce the levels of contamination with bacteria.

Consumption of *R. argentea* for a food-secure county can be enhanced if modern and improved preservation and processing methods are employed.

REFERENCES

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Figure 5: Delicious meals made of *R. argentea*

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