

'ADIN' - A TRADITIONAL SMOKE-DRIED MEAT PRODUCT OF ARUNACHAL PRADESH

R.N.BORPUZARI, M.HAZARIKA, T.BORPUZARI
Department of Animal Production and Management,
Lakhimpur College of Veterinary Science,
Assam Agricultural University,
Azad, North Lakhimpur - 787 001, Assam (INDIA)

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INTRODUCTION : 'Adin' is a traditional smoke-dried meat product of Arunachal Pradesh, a hilly state in the north-eastern part of India bordering China. Different ethnic groups of the state call the product by different names such as, 'Dinko', 'Shanko' etc.; however, the production process is almost identical. The product is prepared from mithun (*Bos frontalis*) meat or beef. It has an outstanding keeping quality and is highly prized by the local population. Although the product is believed to have a long history, the exact date of its origin is not clearly known.

Survey of literatures did not reveal any report on scientific investigation of the product. Sharma (1992) made a reference of such a dried meat product as one of the indigenous meat products of India. Hence, this study was undertaken to determine the proximate composition as well as bacteriological quality of the product.

MATERIALS AND METHODS : The adin used in this study was 5 months old and was procured locally from Itanagar. It was prepared traditionally by the local folks. The characteristic appearance of the ready product is shown in Fig. 1. The production process is depicted in Fig. 2 and details are given below.

Preparation of adin : Fresh beef or mithun meat is cut into long strips of 25-30cm with a thickness of about 1cm and width of 5-6cm. The meat piece is stitched through a finely cut bamboo stick to prevent longitudinal shrinkage. The meat pieces are then placed over

the fire place in the kitchen of the domestic households for months together and when required for consumption, meat pieces are washed after removing the bamboo stick and are

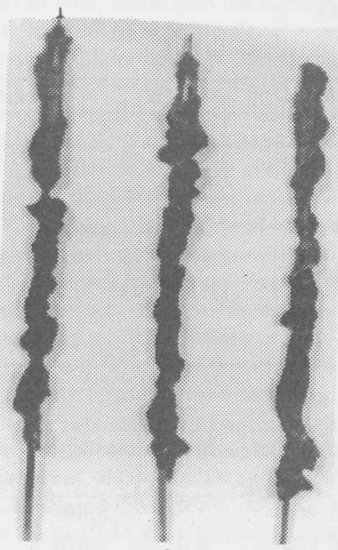


Figure 1. Characteristic appearance of ready adin pieces

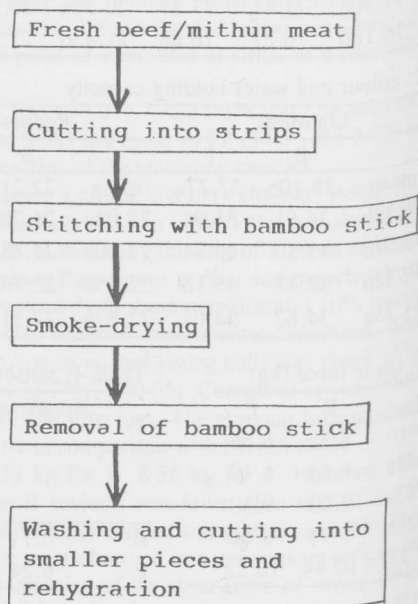


Figure 2. Flow-diagram of production of adin

cut into smaller pieces. Rehydration is done by boiling in water for 1-1½h. Rehydrated meat pieces are cut into still smaller pieces and traditional meat delicacies are prepared.

ed with vegetables and fermented bamboo shoots.

Proximate composition : The proximate composition of the product, viz., water, total protein, fat and ash content was determined as per AOAC (1980) method.

Microbiological examination : Samples for microbiological examinations were collected aseptically wrapped in aluminium foil and were immediately brought to the laboratory for investigation. Total viable count (TVC) was determined by inoculation on standard plate count agar by following the pour plate method. Counts for *Escherichia coli* were determined on BGLB medium. Yeasts and moulds counts were made on potato dextrose agar. Plates for TVC and *E. coli* counts were incubated at 37°C for 24-48h and yeasts and moulds were grown at 25°C for 4-5d. Colony counts were expressed as log₁₀ cfu/g of the product. All the ingredients of the culture media were procured from M/s HiMedia (India).

RESULTS AND DISCUSSION : The analysis of the proximate composition of adin (Table 1) showed that the product was highly nutritious. The high content of protein (53.87%) and fat (20.75%) was due to reduction in the water content of the product to the level of about 20%. The product was found to have a total ash content of 4.78% revealing that

Table 1. Per cent proximate composition of adin

Parameters	% composition (Mean ± SE)
Water	20.60 ± 1.27
Protein	53.87 ± 4.16
Fat	20.75 ± 3.02
Ash	4.78 ± 0.42

n = 10

Table 2. Microbial counts of adin (log₁₀ cfu/g)

Test	Min.	Max.	Mean ± SE
TVC	2.97	3.71	3.68 ± 0.07
<i>E. coli</i>	1.83	2.23	2.15 ± 0.04
Yeasts and moulds	2.73	2.98	2.89 ± 0.05

n=10

the product was found to be a good source of various minerals.

The reasonable wide differences in the mean values of the parameters studied may be attributed to the fact that the samples were produced from different cuts of beef and mithun.

The results of the microbiological examinations of adin (Table 2) revealed that the product has an outstanding microbial quality. The microbial profiles investigated were of very low numbers indicating the very high microbial quality of the product. This high microbial standard of the product might be due to very low water content and concurrent lowering of the water activity (a_w) of the product with the resultant suppression of microbial growth (Troller, 1980). Another reason might be due to the action of the fire-wood smoke as it contains many chemicals inhibitory to the growth and multiplication of microbes (Callow, 1927; Hess, 1928).

CONCLUSIONS : Adin is a typical indigenous meat product of Arunachal Pradesh with excellent nutritional and microbial quality. Its technology of production differs from that of biltong and charque of African continent and the dried meat slices of China (Yao-Huan & Guang, 1992; Wei, 1992). However, its production is confined to local households only and there are scopes to develop or modify the product with proper blend of seasonings etc. to suit the consumer preference of other parts of the country. Further work on physico-chemical properties including flavour studies and detailed microbiological examinations of the product during different stages of its production process is in progress.

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