ABSTRACT:

Husked and dehusked coconut fruits were stored at 10EC and 30EC for three months. The husked coconut fruits stored at both 10EC and 30EC and the dehusked coconut fruits stored at 10EC showed no evidence of microbial spoilage at the end of the three months storage period. However, dehusked coconut fruits stored at 30EC deteriorated. Aspergillus flavus and Aspergillus niger were the principal fungal agents associated with the spoilage. An investigation of the proximate composition of the dehusked fruits stored at 30EC indicated a marked significant difference in the percentage composition of moisture, protein, ascorbic acid and carbohydrate content of 3.97±0.28, 3.98±0.07, 0.01±0.002 and 9.27±1.02 respectively as against 46.82±0.43, 3.77±0.05, 2.48±0.15 and 11.89±0.22 obtained for dehusked coconut fruits prior to storage. These results suggest that the deterioration in nutritional composition was due to breakdown of protein and carbohydrate by the spoilage fungi. Further tests confirmed the ability of the isolated spoilage fungi to utilize the different carbohydrate and nitrogen sources as source of carbon and energy. Aspergillus flavus showed the ability to grow and utilize more of the various carbohydrate sources than Aspergillus niger, although the latter utilized lactose better. Both fungi showed evidence of growth and complete utilization of nearly all the nitrogen sources, except cysteine and L-glutamine, which could not support the growth Aspergillus niger. Likewise, cysteine and L-glutamine, in addition to D-$-phenylalanine could not support the growth of Aspergillus flavus.

Key words: Carbohydrate, dehusked, deterioration, husked, moisture, protein

INTRODUCTION

Cocos nucifera is a tree of the palmaceae family and is indigenous and cultivated in nearly all tropical countries (Gonealves and Teixeira, 1982). Coconuts are referred to as “nuts of India” and has been designated several other names. Oil from coconut is used in making candles, soaps, perfumes, cosmetics and margarine (Gonealves and Teixeira, 1982). With a total production of 9,200 million nuts during 1989-90, India is the world’s third largest producer of coconut (George et al., 1991). Coconut culture and processing play a dominant role in the agricultural economy of the Southern States of India, USA and Nigeria (Asiedu, 1989). More than 50% of the nuts are consumed raw in the household sector and some in form of ready-to-eat sweet meats using sugar and jiggery (Satyanarayana Rao et al., 1990a,b). New products such as processed coconut milk, coconut water and many other food products including infant foods have been developed and marketed (Prasanna et al., 1969; Timmins and Kramer, 1977; Hagenmaier, 1977; Husin and Hassan, 1978; Lupke, 1979; Gonealves and Teixeira, 1982). In India, coconut economy depends
mainly on a single commercial product, which is the coconut oil. Processed coconut cream is also a product that has good market potential. Gwee (1988) reported that 25% of the world’s output of coconut is consumed as coconut milk. In Nigeria, coconut is grown mainly for food and wholly eaten raw, until recently when it is being processed on a small scale into candies, chips etc. (Asiedu, 1989). Despite the fact that coconut has been processed into so many food products, some of which, like coconut milk is an indispensable ingredient in many of the traditional cuisine of South East Asia countries, information on the spoilage pattern of coconut, organisms that cause spoilage and more importantly, the effect of spoilage on the nutritional content of this produce is very sparse. Asiedu (1989) asserted that of the more than 100 products made directly or indirectly from coconuts, seven are of vital importance to world trade-whole coconut, copra, coconut oil, coconut oil cake, coir, desiccated