IASET: International Journal of Biology,
Biotechnology and Food Science (IASET: IJBBFS)
ISSN(P): Applied; ISSN(E): Applied
Vol. 1, Issue 1, Jan – Jun 2016; 7-22

International Academy of Science,
Engineering and Technology
Connecting Researchers; Nurturing Innovations

INCORPORATION OF PAPAIN INTO ICE CREAM: IMPACT ON PAWPAW (*CARICA PAPAYA*) ICE CREAM QUALITY

OFFIA OLUA, B. I., ELUWA, Q. C. & ABUAJAH, C

Department of Food Science and Technology, College of Applied Food Sciences and Tourism,
Michael Okpara University of Agriculture, Umudike. PMB Umuahia, Abia State, Nigeria

ABSTRACT

Pawpaw (*Carica papaya*) ice cream was produced and papain extracted from unripe pawpaw was added to it in order to inhibit ice crystal formation. Vanilla ice cream was used as a control. Proximate compositions, physiochemical, sensory and microbial properties of the ice cream samples were evaluated using standard methods. The proximate composition result indicated high moisture contents of the samples; pawpaw ice cream was significantly ($p<0.05$) lower (62.81%) than the control (65.64%). The ash and fat contents of vanilla ice cream (control) were significantly ($p<0.05$) higher (0.78%) and (7.77%) respectively than that of the pawpaw ice cream (0.45%) and (4.22%) respectively. However, protein and carbohydrate contents were significantly ($p<0.05$) higher in pawpaw ice cream (3.79% and 92.55%) than vanilla ice cream (2.79% and 87.55%) respectively. The total titratable acidity (tta) of both samples had no significant difference ($p>0.05$) (0.22% and 0.23%) respectively. However, they differed significantly ($p<0.05$) in total solids, pH, overrun and sugar contents. The meltdown rate of the pawpaw ice cream (0.02g/min) was lower than that of the control (0.03g/min), though they did not significantly ($p>0.05$) differ. In terms of all sensory attributes, the control sample was more preferred. The ice crystal perception test showed that the control had smoother and silky texture than the pawpaw ice cream sample which was slightly smooth and gritty/ coarse/grainy, slightly creamy and gummy. The microbial load of pawpaw ice cream was higher (3.6 x 103 cfu/ml) than the control (3.1 x 103 cfu/ml).

KEYWORDS: Ice Cream, Ice Crystals, Papain, Pawpaw, Physicochemical, Proximate, Sensory, Microbial, Vanilla