

Fiscal Year:	FY 2004	Task Last Updated:	FY 08/30/2004
PI Name:	Perchonok, Michele Ph.D.		
Project Title:	Thermostabilized Food Study (former title--Shelf Life Determination of Thermally Processed Foods)		
Division Name:	Human Research		
Program/Discipline:	ADVANCED HUMAN SUPPORT TECHNOLOGIES		
Program/Discipline--Element/Subdiscipline:	ADVANCED HUMAN SUPPORT TECHNOLOGIES--Advanced life support		
Joint Agency Name:	TechPort:	No	
Human Research Program Elements:	(1) SHFH :Space Human Factors & Habitability (archival in 2017)		
Human Research Program Risks:	(1) Food :Risk of Performance Decrement and Crew Illness Due to an Inadequate Food System		
Space Biology Element:	None		
Space Biology Cross-Element Discipline:	None		
Space Biology Special Category:	None		
PI Email:	michele.h.perchonok@nasa.gov	Fax:	FY 281-483-1847
PI Organization Type:	NASA CENTER	Phone:	281-483-7632
Organization Name:	NASA Johnson Space Center		
PI Address 1:	Program Science Management Office		
PI Address 2:	2101 NASA Road 1, Mail Code SF411		
PI Web Page:	http://hefd.jsc.nasa.gov/		
City:	Houston	State:	TX
Zip Code:	77058	Congressional District:	22
Comments:			
Project Type:	GROUND	Solicitation / Funding Source:	NOT AVAILABLE
Start Date:	08/01/2001	End Date:	09/30/2005
No. of Post Docs:	0	No. of PhD Degrees:	0
No. of PhD Candidates:	0	No. of Master' Degrees:	0
No. of Master's Candidates:	0	No. of Bachelor's Degrees:	0
No. of Bachelor's Candidates:	0	Monitoring Center:	NASA JSC
Contact Monitor:	Contact Phone:		
Contact Email:			
Flight Program:			
Flight Assignment:			
Key Personnel Changes/Previous PI:	0		
COI Name (Institution):			
Grant/Contract No.:			
Performance Goal No.:			
Performance Goal Text:	<p>The National Aeronautics and Space Administration (NASA) is working towards future long duration manned space flights beyond low earth orbit. The duration of these missions may be as long as 2.5 years and will likely include a stay on a lunar or planetary surface. For these long duration missions, a shelf life of 3 to 5 years for the prepackaged transit food system is required.</p> <p>Of the preservation methods currently being used at NASA for the Shuttle and International Space Station food systems, the thermostabilized items will have the longest shelf life. Currently four approved International Space Station thermostabilized packaged foods are undergoing accelerated shelf life testing in the Space Food Systems Laboratory (SFSL) at NASA/Johnson Space Center. The foods, bread pudding, carrot coins, tuna noodle casserole, and apricot cobbler, are being stored in controlled temperature chambers at 40oF, 72oF, and 95oF. Analytical tests to measure color, texture, pH, and water activity will be correlated with the sensory tests to determine the changes occurring in the foods.</p>		

Task Description:	<p>The sensory tests will measure the difference from control (40oF) as well as overall acceptability. Nutritional analysis will be completed three times during the shelf life test.</p> <p>The objective of this research is to continue the shelf life determination of these four thermostabilized food items. Sensory and analytical data will be collected every four months on the four food items that will be stored at 40oF, 72oF, and 95oF for approximately 3 years. The shelf life test will be terminated after 3 years or whenever the product becomes unacceptable, if before 3 years. In addition to determining the shelf life of these foods, a better understanding of the chemical and physical changes that can occur throughout their shelf life will be learned.</p> <p>Also, as part of this year's tasks, a document describing the accelerated shelf life testing protocol for NASA/JSC will be completed. It will combine the practical portions of a sensory protocol written in FY01 (SFSL Sensory Protocol, 2001) and the analytical tests that have been developed in Fiscal Year 2002. The objective of this project was to continue the accelerated shelf life testing of four thermostabilized food items: apricot cobbler, tuna noodle casserole, bread pudding, and carrot coins. Sensory and analytical data were collected every four months on the four food items stored at 40oF, 72oF, and 95oF. To provide an accelerated shelf life test protocol for thermally processed pouches with a potential 3 - 5 year shelf life.</p>
Rationale for HRP Directed Research:	
Research Impact/Earth Benefits:	Extended shelf life foods will be important for third world countries, camping environments, and survival experiences.
Task Progress:	Bread pudding: After 24 months, the 95oF test for bread pudding failed and the shelf life test at that temperature was discontinued. The 40oF and 72oF samples remained acceptable even after 30 months. Apricot cobbler: The 95oF samples failed at 16 months. At 20 months, the 40oF and 72oF samples were still acceptable. Carrot coins: At 20 months, the 95oF samples failed. The 40oF and 72oF samples remained acceptable. Tuna noodle casserole: At 20 months, the 95oF samples failed. The 40oF and 72oF samples remained acceptable. Pork chops: The 40oF, 72oF, and 95oF samples were all acceptable after 18 months.
Bibliography Type:	Description: (Last Updated: 01/30/2012)