Fiscal Year:	FY 2015	**Task Last Updated:**	FY 09/25/2015
PI Name:	Sirmons, Takiyah Ph.D.		
Project Title:	Food Fortification Stability Study		
Division Name:	Human Research		
Program/Discipline:			
Program/Discipline--Element/Subdiscipline:	HUMAN RESEARCH--Space Human Factors Engineering		
Joint Agency Name:		**TechPort:**	No
Human Research Program Elements:	(1) **SHFH**:Space Human Factors & Habitability (archival in 2017)		
Human Research Program Risks:	None		
Space Biology Element:	None		
Space Biology Cross-Element Discipline:	None		
Space Biology Special Category:	None		
PI Email:	t.a.sirmons@nasa.gov	**Fax:**	FY
PI Organization Type:	NASA CENTER	**Phone:**	281-244-8443
Organization Name:	KBR/NASA Johnson Space Center		
PI Address 1:	2400 NASA Parkway – Building 17		
PI Address 2:			
PI Web Page:			
City:	Houston	**State:**	TX
Zip Code:	77058	**Congressional District:**	22
Comments:			
Project Type:	GROUND	**Solicitation / Funding Source:**	Directed Research
Start Date:	10/05/2014	**End Date:**	11/30/2016
No. of Post Docs:		**No. of PhD Degrees:**	
No. of PhD Candidates:		**No. of Master' Degrees:**	
No. of Master's Candidates:		**No. of Bachelor's Degrees:**	
No. of Bachelor's Candidates:		**Monitoring Center:**	NASA JSC
Contact Monitor:	Whitmore, Mihriban	**Contact Phone:**	281-244-1004
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Flight Program:			
Flight Assignment:			
Key Personnel Changes/Previous PI:	PI change in October 2014 to Takiyah Sirmons (previous PI=Maya Cooper).		
COI Name (Institution):	Douglas, Grace Ph.D. (NASA Johnson Space Center) Cooper, Maya M.S. (Lockheed Martin/NASA Johnson Space Center)		
Grant/Contract No.:	Directed Research		
Performance Goal No.:			
Performance Goal Text:			
Task Description:	NOTE: Continuation of "Food Fortification Stability Study" with Maya Cooper as the PI. See project under Cooper's name for previous reporting. NASA is planning for long duration missions beyond low Earth orbit. To ensure sustainment of crew health and performance, adequate nutrition must be delivered by the food system, thereby supporting mission success. The current food system does not meet the shelf life requirements (up to five years) to support long duration missions in part due to the marked degradation of certain vitamins over time. While work continues to determine the magnitude of vitamin loss, a number of vitamins have already been identified that have low concentrations post-processing, or significantly degrade over one to three years of storage. Fortification using commercially available synthetic or encapsulated nutrients, which have increased stability in processing and storage conditions, has been suggested as a countermeasure, but the efficacy and stability of these nutrients is unknown over the extensive storage durations required for exploration		

	missions. It is expected that commercially available fortification nutrients will remain stable through the required shelf life at sufficient levels in compatible foods, processing, and storage conditions. The purpose of this task is to evaluate commercially available fortification nutrients in a selection of space foods under different processing and storage conditions to determine their stability and effect on food acceptability over time. The findings will inform capabilities and limitations of currently available fortification nutrients that will be used to propose requirements for future development.
Rationale for HRP Directed Research:	This research is directed because it contains highly constrained research, which requires focused and constrained data gathering and analysis that is more appropriately obtained through a non-competitive proposal.
Research Impact/Earth Benefits:	The Food Fortification study will bring vitamin stability knowledge of supplements in food to the open access environment, which will help smaller food manufacturers improve the nutrition of their foods without assuming the prohibitive cost of shelf life research. The data should promote wise fortification of foods. Large-scale companies treat vitamin stability data as proprietary knowledge.
Task Progress:	NOTE: Continuation of "Food Fortification Stability Study" with Maya Cooper as the PI. See project under Cooper's name for previous reporting.
Bibliography Type:	Description: (Last Updated: 11/05/2020)