Project Title:	Use of locally isolated probiotics to reduce off-flavour in intensive tilapia culture system		
Annual Report	**Period Covered:** October, 2020 – September, 2021		
KCSAP livestock Applied	**Value chain:** Aquaculture	**Duration: 18 Months**	**Start Date: Oct 2020**
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Background The potential for aquaculture industry production in Kenya using the available water resources has not been fully realized. Currently, aquaculture production is largely dependent on traditional systems where farmers mainly use inputs available on the farm and traditional techniques. This leads to relatively low aquaculture production and poor quality products that consumers do not like mainly due to unpleasant odour amongst other concerns. The aims of the project is production of quality fish (tilapia) by applying locally isolated probiotics to combat off-flavour in tilapia and improving water quality in production ponds in Busia and Siaya Counties.			
Objectives 1. To isolate and identify probiotic bacteria from selected aquatic ecosystems in Busia and Siaya Counties. 2. To apply the isolated probiotics bacteria in intensive tilapia culture systems for reduced off-flavour and odour in fish produced and control of harmful cyanobacteria for improved water quality.			
Expected Outputs 1. Appropriate local probiotic microorganisms isolated and identified. 2. Probiotic bacteria incorporated in fish feeds and in water to reduce off-flavours in the fish; and for the management of water quality.			

I ACHIEVEMENTS

Objective 1

To isolate appropriate local probiotic cultures from selected aquatic ecosystems in Busia and Siaya Counties.

Activity 1.1 Collection of samples from selected aquatic ecosystems for the isolation of probiotic bacteria in fish.
Achievement 1.1: A site adjacent to Lake Victoria in Sisenyi, Bunyala North Ward, was identified as a suitable location for the establishment of experimental ponds (discussed and agreed upon by the members of this cooperative society).

Activity 1.2: Isolation and biochemical analysis of bacteria strains (probiotics)

Activity 1.3: Molecular and metagenomic analysis of selected probiotic bacteria

Summary of achievements under objective 1
The activities in objective 1 were scheduled for the period from January – June 2022. However this did not happen as planned.

Objective 2: To apply probiotic isolates in intensive tilapia culture systems to control harmful cyanobacteria and reduce off-flavour in the fish.
Activity 2.1: Field experiments to determine effects of probiotic isolates on fish growth and water quality.
Activity 2.2: Application of probiotic isolates to fish feeds for feeding experiments and ponds for water quality.
Activity 2.3: Bacterial count in fish to compare the probiotic effects in the different experimental set-up.

Summary of achievements under objective 2
The implementation of the project activities in objective 2 will be done in the period from January to June 2022. However. this did not happen as planned.

Objective 3
To manage and coordinate project activities, and disseminate information.
Activity 3.1
Project Inception workshop/ meeting
Achievement 3.1
A two-day inception workshop was held on 4th and 5th October, 2021 at Friends Guest House, Siaya. During the workshop the proposal and work plan were revised, and modalities for field and experimental work concluded.
Activity 3.2
Project coordination meetings/write shops

Activity 3.3
Sensitization and publicity workshops

II Other achievements - none

III Constraints and how they were overcome

i. The main constraint to the smooth implementation of the project has been satisfying in a timely manner the constitutional and statutory requirements of the Procurements and

Asset Disposal Acts (2015, 2020). These require meticulous procedures which led to delays in the processing and procurement of goods and services. However, the University, through the Division of Research and Extension has put in place measures to improve on the process.

ii. Initially, the overall objective of the KSCAP Applied Research projects and the research proposal were not properly aligned. However, through the monitoring and evaluation exercise conducted by KALRO, the proposal was revised and the focus on production of new technologies, innovations and management systems (TIMPs) made emphasized within the project timelines.

IV Summary of funds received, accounted for and balance

Project Amount (KES)	**Amount Received (KES)**	**Amount accounted for (KES)**	**Balance (KES)**
4,829,730.00	597,865.00	Financial report yet to be submitted	(4,231,865.00) Subject to submission of financial report

IV Way Forward

To ensure the objectives of the project are achieved within the set timelines, the activities are planned for the period from October 2021 to June 2022 have continued as per workplan.