Addressing the comments of the Reviewer 1

Reviewer's Comment: The introduction is well written but there are some minor language errors.
Our Response: We would like to thank the Reviewer for complementing our study, design, and writing, as well as the suggestion for some modifications. The language errors in the Introduction part have been corrected accordingly. You may kindly go through the Introduction section of the revised manuscript where necessary changes are highlighted in Red.
Reviewer's Comment: The symbol of "°C" differs throughout the text and it should be unified.
Our Response: We do sincerely appreciate the reviewer comment. ˚C has been written by putting a space before it and have been unified in the whole manuscript. Please go through the revised manuscript.
Reviewer's Comment: There are also some issues with citations in the manuscript – numerical citations or whole names with year citations.
Our Response: We would like to thank the Reviewer for pointing out this inconsistency. We have edited the citations issue in the revised manuscript keeping uniform style. You are requested to go through the revised manuscript.
Reviewer's Comment: In chapter 2.2 about DNA extraction, there is the term "challenged shrimp" but if I understand correctly the authors means naturally infected shrimp collected from farms which is confusing.
Our Response: We are happy to the Reviewer for this judicious query. We collected samples from naturally infected and artificially challenged shrimp PL. In the chapter 2.2 about DNA extraction, the term 'challenged shrimp' has been used to mean the DNA extraction from experimentally challenged shrimp PL. We have revised this sub-section with addition of a sentence. You may kindly go through **Page 4** in the revised manuscript.
Reviewer's Comment: There is a lot of information regarding the parameters of water, but I would like to know at what time of year the samples were taken in field studies. The same number of samples was taken from each farm but there is no information concerning the total number of shrimp/crab in the given facility.
Our Response: We thank the Reviewer for this nice suggestion. A total of 360 shrimps and 120 crabs were grossly collected after farmers complain regarding death of the crustaceans in their farming ghers (shrimp ponds) during monsoon (May-June) in 2017 to 2019. We also continued our sampling in post-monsoon (October) during three-year study period (2017 -2019) when no death of crustaceans was reported in the study ghers by the respective farmers (Please see Table S1). The physicochemical parameters mentioned in the Tables are mean values from different years. Furthermore, the total number of shrimps and crabs in the given facility was unknown for the farmers as we collected samples from improved traditional ghers.
Reviewer's Comment: Does "Cox 1, 2, 3, 4, 5" indicate the same farm but different times of sampling? If so why the samples from this farm were taken five times, compared to 3 times in other farms?
Our Response: We do appreciate the Reviewer for such a noble query. 'Cox1, 2, 3, 4, 5' does not indicate the same farm. These are the shrimp ghers of Cox's Bazar sadar Upazilla from Cox's Bazar district.
Reviewer's Comment: Does all of the collected animals had clinical symptoms of the disease? In the experimental challenge, there is information concerning the origin and health status of shrimp but there is little information regarding the crab challenge.
Our Response: Thank you very much for this query. All the collected samples did not have clinical symptoms of the disease at the same time. Moreover, farmers could not confirm the health status of the shrimps and crabs in the given facility. For the crab challenge we needed WSSV-free crabs which were

collected from WSSV-free crab farms in Satkhira and they were also further tested for WSSV-negativity confirmation using conventional PCR.

Reviewer's Comment: How old were the animals? Where were they tested before the challenge?

Our Response: We thank the Reviewer for this nice comment. The crabs were of 6 months of age. Crabs those were used for the in-vivo challenge tests were collected from WSSV-free crab farms. Their WSSV-negativity was further tested before the experimental infection using conventional PCR in the lab. You may kindly go through the revised manuscript.

Reviewer's Comment: Also, the number of crabs in the experimental challenge is only 5 animals, which is much less compared to the shrimp challenge.

Our Response: We are happy to see the reviewer's comment. It has been a pilot study conducted on 45 mud crabs using the tissues from both phylotypes (BD1 and BD2) through ingestion method. The crabs were collected from a WSSV-free crab farm of Satkhira district. Moreover, we also tested the health status of the crabs through conventional PCR before the experimental infection. The crabs were divided into three groups; Group-1 = 15 crabs challenged with BD1, Group-II = 15 crabs challenged with BD2, and Group-III = 15 crabs, served as control. The crabs were of 6 months of age, and each group was kept in separate tank containing 5 crabs in each. You may kindly go through the revised manuscript.

Reviewer's Comment: I don't understand what "vs" stands for in figure 1B. Can you explain it?

Our Response: Thank you for this nice comment. The word 'vs' was used to compare between two groups which is not actually necessary in the figure and has been deleted. Please go through the revised manuscript.