Title of Article: Histopathological Studies of Utilization of Brewery Spent Grains Effect in Humans Food Chain.

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Abstract: The brewing industries continuously generate lot of solid waste of which spent grains is a major by product. The present utilization method of Brewery Spent Grains (BSG) in food chain makes it imminently necessary to explore the adverse effect of the waste on humans. This paper focuses on investigating the effects of BSG formulated diet on haematological, biochemical, histological and growth performance using Donryu rats as model for the experiments. The rats were allocated into six dietary treatment groups and fed on a short-term study with diet containing graded levels of spent grains from 0, 3, 6, 9, 12 and 15 % weight/weight. The results revealed that the formulated diet had a positive effect on the growth performance of the rats up to levels of 6 % inclusions, while the haematological and biochemical evaluation revealed that the threshold limit should not exceed 9 % of the grain. However, the histophatological study on the liver indicated a limit of 3 % exploitation of BSG in feed without serious adverse effect, hence blend range of 1-3 % will be appropriate for utilization in human food without adverse effect on liver organ.