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**Effect of different levels of hydroponic barley fodder on immune response to vaccine
and the quality and sensory properties of meat produced by fattened kid**

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Abstract

The aim of this study was to investigate the effect of different levels of hydroponic barley fodder on vaccine response and chemical, physical, texture and sensory properties of Fars native kids. Twenty-eight Fars native male kids (6-7 months old, 21 ± 2 Kg initial body weight) were allocated in four treatments and six replicates in a completely randomized design. The animals were kept in individual pens with free access to water and feed. Hydroponic barley fodder was replaced at four levels of 0, 25, 50 and 75% for alfalfa. Adaptation and experimental periods were 10 and 80 days respectively. Three weeks after the start of the experiment, 1 ml of vaccine against Agalactia syndrome (Razi, Shiraz, Iran) was injected to all animals, except for 3 kids in the control group. At the end of the experiment, the kids were slaughtered. After 24 hours of carcass chilling at 4°C , the *Longissimus dorsi* muscle was dissected and tested for physical items as color, water holding capacity, storage weight loss and cooking weight loss, chemical items as pH, inter-muscle fat, protein, dry matter and lipid oxidation, texture factors like hardness, adhesiveness, cohesiveness, springiness and chewiness and sensory evaluation including color, odor, tenderness and general acceptance were divided into smaller pieces. Among the above factors, only protein and lipid oxidation values were higher significantly ($p < 0.05$) in 25% of barley hydroponic fodder treatment when compared to control or other experimental treatments, in contrast with cooking weight loss. According to the results of this study, it can be concluded that the replacement of hydroponic barley fodder for alfalfa in the diet of the fattening kid up to 75% had no negative effects on the immune response to the vaccine and the chemical, physical and oxidative properties of meat during storage in the refrigerator or freezer when compared to the control treatment.

Keywords: Sensory evaluation, Fars native kids, Physicochemical properties, Hydroponic barley fodder, Meat