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**Bach Thao goats consumed diluted seawater altered weight gain and blood biochemical parameters**

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**Abstract:**

**Background/Objective:** Bach Thao goats, a prominent breed in Vietnam, are well-regarded for their adaptability to harsh environments and their significant contribution to local economies. These goats are typically raised in areas where water quality can be a limiting factor for optimal growth and health. Understanding how alternative water sources, such as diluted seawater, impact the physiological and biochemical parameters of these goats is crucial for sustainable livestock management. Therefore, this study aimed to evaluate the effect of saline water (SW) on physiological responses, blood biochemical parameters and body weight changes in goats.

**Methods:** The study was designed completely randomized with four treatments (n=5 each), including a control as goats drinking fresh water (FW), goats drinking 0.5% SW (LSW, low SW), goats drinking 1.0% SW (MSW, moderate SW) and goats drinking 1.5% SW (HSW, high SW). The parameters were collected such as dry matter intake (DMI), water intake (WI), physiological responses and blood biochemical measurements.

**Results:** The results demonstrated that DMI decreased with increasing salinity in the water (P<0.05). Goats in MSW group had the highest WI, while those in the HSW group consumed the least water compared to the MSW from the 4th to the 8th week of experiment. Respiration rate and rectal temperature were significantly higher in HSW group compared to FW group (P<0.05). Although body weight was similar to among treatments, goats in the HSW group experienced lower weight gain than those in the control group (P<0.05). Furthermore, goats in the HSW group showed altered blood biochemical parameters by the eighth week, but not for the fourth week.

**Conclusion:** We concluded that consuming high saline water over a 56-day period had negative effects on the production of Bach Thao goats and potentially impacted liver and kidney function. Additionally, goats in the HSW group reduced their daily water intake to minimize salt stress.

**Keywords:** Animal welfare, blood biochemical parameters, physiological responses, saline water, production.