

Effect of dietary supplementation of astaxanthin (potent antioxidant) on growth rate, DMI, FCR and metabolic changes in Karan Fries heifers during heat stress

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ABSTRACT

A study was conducted on twelve Karan Fries (Holstein Friesian X Tharparkar) heifers, (10-12 months), in LRC of NDRI, Karnal. Heifers were divided equally into two groups i.e. control, and treatment (supplemented with astaxanthin @ 0.25 mg per kgBW per day per animal) to assess the heat stress ameliorative action of astaxanthin during summer season. During experimental period, environmental variables were recorded and THI was calculated to assess levels of summer stress. Blood samples were collected from both the group of heifers at fortnightly interval for quantification of plasma leptin and ghrelin hormones. Body weights of heifers were recorded at monthly interval. The body weight gain and ADG were significantly ($P \leq 0.05$) higher in treatment group. Feed intake was higher ($P \leq 0.05$) and FCR was lower ($P \leq 0.05$) in astaxanthin supplemented group. Plasma leptin was higher ($P \leq 0.05$), while, plasma ghrelin and surface skin temperature were numerically lower in treatment than control group of heifers. The study found that astaxanthin supplementation ameliorated the negative impact of summer stress and helped in enhancement of growth rate and ADG by improving the feed intake and by decreasing the FCR of heifers.

Key words : Growth, heifer, Karan Fries, mitigation, summer season, heat stress