



Assessing essentiality of nickel in growing Haryana heifers by determining its effect on performance, nitrogen and mineral metabolism, urease activity, and endocrine biomarkers

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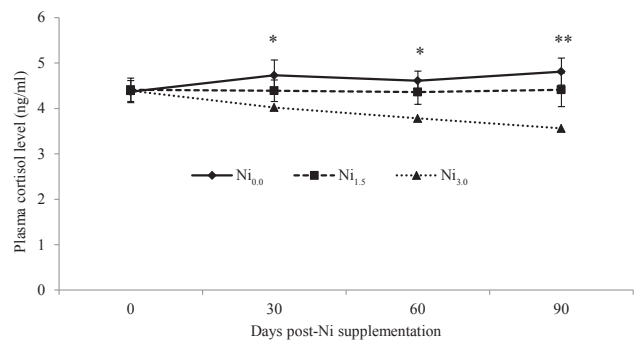
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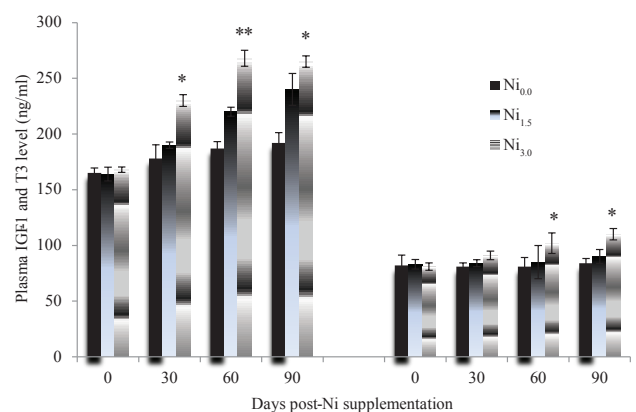
Supplementary Table 1. Ingredients and chemical composition of TMR fed during the experimental period

Ingredient	g/kg DM or as mention
Berseem fodder	350
Wheat straw	200
Barley	200
Wheat bran	45
Gram husk	50
Mustard oil cake (expeller extracted)	150
Mineral mixture ^a	5
NiSO ₄ ·6H ₂ O	Variable ^b
<i>Chemical composition</i>	
DM (g/kg DM)	551
CP (g/kg DM)	136
EE (g/kg DM)	32
Total ash (g/kg DM)	109
aNDFom (g/kg DM)	460
aADFom (g/kg DM)	304
ADL (g/kg DM)	37
Ca (g/kg DM)	9.50
P (g/kg DM)	4.20
Ni (mg/kg DM)	1.27
Fe (mg/kg DM)	331.25
Zn (mg/kg DM)	46.18
Cu (mg/kg DM)	19.85

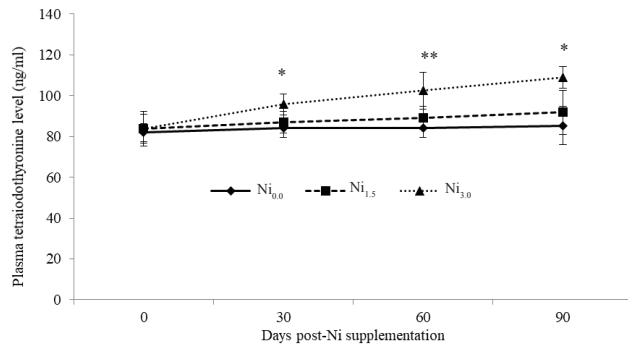
^aMineral mixture consisted of (per kg): Vitamin A, 700,000 IU; Vitamin D3, 70,000 IU; Vitamin E, 250 mg; Nicotinamide, 3,000 mg; Ca, 190 g; P, 90 g; Na, 50 g; Cu, 1200 mg; Zn, 9600 mg; Fe, 1500 mg; Mn, 6000 mg; I, 325 mg; Co, 150 mg; Se, 10 mg; Mg, 19,000 mg. ^bSupplemental Ni levels (1.5 and 3.0 ppm Ni) obtained by supplementing 1.5 and 3.0 mg Ni/kg DM in basal diet. Ni was supplemented as nickel sulphate hexahydrate (NiSO₄·6H₂O, molecular weight 262.86, minimum assay purity 98%, Loba Chemie Pvt. Ltd., Mumbai).



Supplementary Fig. 1. Effect of Ni supplementation on plasma cortisol concentration; single (* $p \leq 0.05$) and double (** $p < 0.001$) asterisks represents statistical significance compared with control.



Supplementary Fig. 2. Effect of Ni supplementation on plasma IGF-1 and T3 concentration; single (* $p \leq 0.05$) and double (** $p < 0.001$) asterisks represents statistical significance compared with control.



Supplementary Fig. 3. Effect of Ni supplementation on plasma tetraiodothyronine concentration; single (* $p \leq 0.05$) and double (** $p < 0.001$) asterisks represents statistical significance compared with control.