



Body composition changes of male mice C57BL/6 fed high-fat diets supplemented with bovine milk coming from three feeding systems in subhumid tropics

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INTRODUCTION

The diets of ruminant animals are the main cause of the modification of milk quality. The objective of this study was to compare the body weight, fat mass and lean mass in a mouse model fed with a high-fat diet (HFD) supplemented with lyophilized bovine milk coming from three feeding systems from sub-humid tropical region of Yucatán, Mexico.



Figure 2. Body Composition Analyzer (EchoMRI-700 TM; Echo Medical Systems)

For lean or muscle mass, HFD obtained the lowest percentage, being statistically different to CD which showed the largest value.

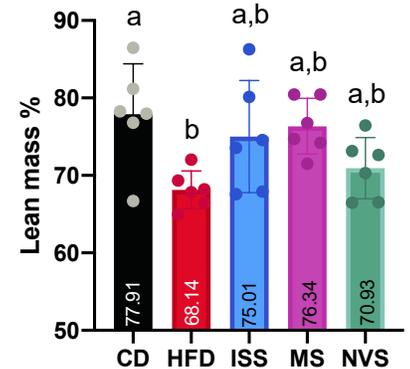


Figure 5. Lean mass of mice fed high-fat diets supplemented with bovine milk coming from three feeding systems



Figure 1. Feeding systems. Intensive silvopastoral system A, monoculture system B, native vegetation system C.

Mice were fed *ad libitum* during 98 days; body weight and food intake were recorded once a week. Body composition was evaluated by quantitative magnetic resonance.

RESULTS

HFD increased body weight compared to CD and ISS. However, all groups supplemented with cow's milk showed a tendency to lower body weight at greater extent than HFD.

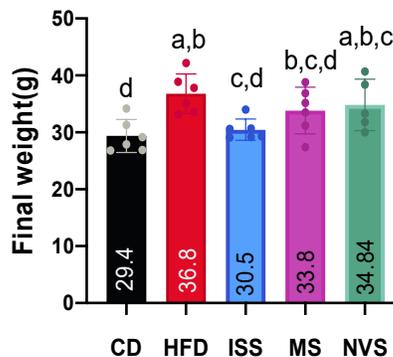


Figure 4. Final body weight of mice fed high-fat diets supplemented with bovine milk coming from three feeding systems

Fat mass percentage was maximum in HFD being different from CD and ISS. The SM and NVS groups were not distinct from CD in this respect.

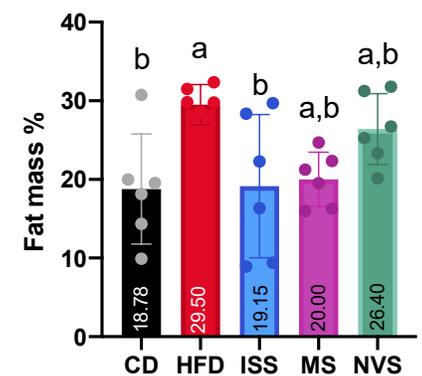


Figure 6. Fat mass of mice fed high-fat diets supplemented with bovine milk coming from three feeding systems

METHODS

Thirty male mice of 21 days of age were allocated into 5 groups (n=6). The experimental groups were: 1) CD= control diet; 2) HFD= high fat diet; 3) ISS= HFD plus 40% lyophilized bovine milk from intensive silvopastoral system; 4) MS= HFD plus 40% lyophilized bovine milk from monoculture system, and 5) NVS= HFD plus 40% lyophilized bovine milk from native vegetation system.

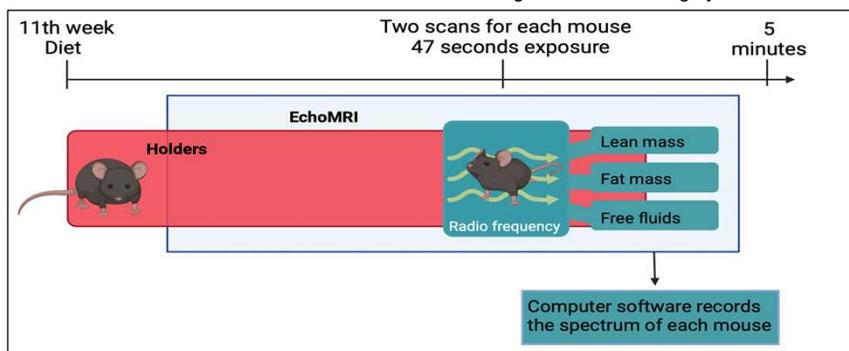


Figure 3. Magnetic resonance imaging by Echo MRI.

CONCLUSION

Cow's milk, could be a non-pharmacologic approach to modulate metabolic alterations encouraged by a high fat diet. Supplementation cow's milk deflects excessive body weight gain while depleting body fat mass deposition.

