Effect of beef and pork fat inclusion on color of raw and cooked Nilgai Antelope patties.

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Nilgai antelope (*Boselaphus tragocamelus* Pallas) are a bovid native to India that were introduced to southern Texas for recreational hunting, and are commercially harvested for exotic meat markets. Nilgai are lean, and ground nilgai meat often has fat added to enhance palatability. The research objective was to determine if beef and pork fat added to ground nilgai affected color of raw and cooked patties. The hypothesis was fat inclusion would impact patty color with beef fat having the greatest impact. There were three treatments (100% Nilgai; 85% Nilgai-15% Beef Fat; 85% Nilgai-15% Pork Fat), 11 patties per treatment. Patties were cooked to a peak internal temperature of 71^{o}C on an electric griddle. Fat inclusion resulted in lighter (L*; $P < 0.05$), yellower (b*; $P < 0.05$) raw patties with nilgai-pork fat being the lightest (L*; $P < 0.05$). Raw 100% nilgai had the greatest ($P < 0.05$) red color (hue angle and a*/b*). Raw 100% nilgai had the least ($P < 0.05$) discoloration (a*/b*) with nilgai-beef fat having the greatest ($P < 0.05$). Cooked patties with fat were darker (L*; $P < 0.05$) compared to 100% nilgai. Cooked 100% nilgai had greater ($P < 0.05$) denatured metmyoglobin color (hue angle) compared to nilgai-beef fat. The color change during cooking resulted in patties with fat becoming darker (L*; $P < 0.05$) with reduced ($P < 0.05$) yellowness (b*) compared to 100% nilgai. Patties with fat had a greater ($P < 0.05$) reduction in color intensity (chroma) during cooking compared to 100% nilgai. Thus, inclusion of fat impacted both raw and cooked ground nilgai patty color with inclusion of beef fat resulting in the darkest cooked color.