

LENTIL FLOUR IN BATTER, BREADING & COATING SYSTEMS



INTRODUCTION

A study was conducted to demonstrate the potential to use lentil flour as a functional and value-added ingredient in batter, breading and coating systems. This project evaluated the benefits of lentil flour in a range of deep-fried products resulting in color improvements, reduced cooking times and enhanced sensory properties.

CASE STUDY: FRIED CHICKEN

Raw and de-flavored red lentil flour (~25% protein) were incorporated into traditional, fried chicken tender & thigh breading systems replacing 20, 30, and 40% wheat flour in the formulation.



Figure 1. Chicken tenders (left to right): 100% wheat flour (water wash), 100% wheat flour (milk wash), 20% de-flavored lentil flour (water wash), 30% de-flavored lentil flour (water wash), 40% de-flavored lentil flour (water wash).

WHAT IS LENTIL FLOUR?

Lentil flour is produced through the systematic grinding and sieving of Canadian lentils. A de-flavoring step is sometimes applied to eliminate beany/bitter notes associated with the raw seed. This step traditionally involves the application of heat, which partially cooks and denatures the starch and proteins present, changing the performance of the resulting flour in foods. Lentil flours are a nutritious ingredient, being rich in protein, fibre, vitamins and minerals.

STUDY HIGHLIGHTS

- Lentil flour addition contributed to an evenly distributed and visually appealing golden-brown color in the final product
- Optimal color development in chicken systems formulated with lentil flour was attained using water wash, eliminating the need for dairy/egg additives (thus potential allergens) during the wet preparation step.
- A reduction in frying times was observed (40% decrease for chicken tenders; 25% decrease for chicken thighs) because of the superior rate of color development obtained by lentil flour inclusion that did not compromise the internal cook temperature of the final product.
- Sensory evaluation detected those products formulated with de-flavored lentil flour resulted in crispier and crunchier fried chicken than wheat flour alone.