Canary seed Development Commission of Saskatchewan

ALPISTE (Canary seed) **PROCESSING FUNCTIONALITY**

INTRODUCTION

Alpiste (Canary seed) is a speciality grain recently approved for human consumption in both Canada, the United States and the European Union. Preliminary work has been conducted on Alpiste's (Canary seed) milling performance, flour functionalities, and extruded snack and cereal product opportunities. The shelf-life is 15 months for the dehulled grain and eight months for the flour.

MILLING OPPORTUNITIES

Alpiste (Canary seed) are small oval grains with lengths and widths of 4.0-5.1 mm and 1.5-2.0 mm respectively. The specialty grain requires dehulling followed by air aspiration to prepare it for use in food ingredients or direct consumption. Roller milling, hammer milling, and pin milling of the Alpiste (Canary seed) specialty grain have been explored to show the versatility of the grain. Dehulling removes about 20% of the whole grain weight.

ROLLER MILLING

Flour

Roller milling was used to produce whole grain flour from the Alpiste (Canary seed) grains. When 100% Alpiste (Canary seed) flour was used to replace wheat flour, it resulted in pan bread that was significantly lower in loaf volume than wheat bread. The crust and crumb colour of the Alpiste (Canary seed) bread was also different than wheat bread. However, a formulation of 25% Alpiste (Canary seed) flour resulted in comparable loaf volume and crust colour to 100% whole wheat bread.

Flakes

The speciality grains were tempered to different moisture levels, heat treated at 250°F (120°C) for 8 minutes, and then fed into a roller mill to produce flakes. Tempering to 14% moisture and a heat treatment prior to roller milling produced intact, high quality flakes.



Yellow Alpiste (Canary seed) Grains



Yellow Alpiste (Canary seed) Flakes (14% moisture, roller milled) Canary seed Development Commission of Saskatchewan

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HAMMER MILLING AND PIN MILLING

Alpiste (Canary seed) was dehulled and milled to fine and coarse fractions by hammer milling and pin milling without any pre-treatment of the speciality grain. In general, except for water hydration capacity, the pin milled flours exhibited higher functionalities compared to hammer milled flours.

EXTRUSION OPPORTUNITIES

Alpiste (Canary seed) flours that have been pin milled or hammer milled replaced corn flour at 25%, 50% or 100%. Extrudates containing 100% Alpiste (Canary seed) flour exhibited high bulk densities and low expansion indices resulting in dry, crumbly extrudates. Combinations of corn flour and Alpiste (Canary seed) flour at 50/50 or 75/25 gave higher quality extrudates.

Puffs

Alpiste (Canary seed) has been successfully used to make puffs with a formulation of 73% corn flour, 25% Alpiste (Canary seed) flour, and 2% pea fibre. These puffs had good cell structure and mouthfeel.

Crisps

Alpiste (Canary seed) flours at 20-45% inclusion level combined with pea starch concentrates and pea hull fibre produced crisps of the highest quality and appeal. Crisps can be used as breakfast cereals and for inclusion in snack applications such as bars and confectionary.

Other

Alpiste (Canary seed) flours would also be suitable for extruding products that do not require expansions (i.e. wavy chips, pasta, compact breakfast cereals such as protein or fibre buds, and crackers). Partially replacing corn or soy flour with Alpiste (Canary seed) flour improved nutritional quality while maintaining product characteristics.

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