

Review paper

# New trends in preparing buckwheat dishes in Slovenia

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## ABSTRACT

Slovenian cuisine is traditionally related to the use of buckwheat, especially common buckwheat. At the Education Centre Piramida Maribor there are developing possibilities of using common and Tartary buckwheat in modern gastronomy. This paper presents buckwheat dishes, which were developed and upgraded according to the trends in modern nutrition, along with market responses. Present varieties of buckwheat bread made with different leavening agents (e.g. yeast, sourdough, baking powder, cream of tartar, mineral water and without rising agents), confectionery (e.g. cakes, pies, cream-pies, strudels, biscuits) from Tartary buckwheat, common buckwheat and other flours and also Tartary buckwheat pasta are presented. Buckwheat (either as gruel or as flour) can also be used as an ingredient in filling the chocolate pralines or in ice cream. In addition various buckwheat dishes with a touch of contemporary trends and culinary art are introduced. Furthermore, the possibilities of using common and Tartary buckwheat flour for gluten-free confectionery and for a variety of sweet and savory gluten-free dishes in the culinary will be presented. The latest speciality will be the presentation of buckwheat bread, confectionery and pasta combined with edible flowers.



**Fig. 1.** Marbled bread. Left: Tartary buckwheat part (the dark greenish one, 30% Tartary buckwheat flour, with wheat flour), the grey part is 30% common buckwheat flour, with wheat flour, and the white part is 100% wheat flour. Right: the grey part is 30% common buckwheat flour, with wheat flour, the white part is 100% wheat flour, and yellow part is made from corn flour (30% corn flour, with wheat flour).

## INTRODUCTION

Slovenian cuisine is traditionally related to the use of buckwheat. We know several Slovenian national dishes, such as buckwheat groats, buckwheat 'žganci', buckwheat

'krapec', buckwheat black sausage, buckwheat 'bizejski kolač', 'ajdnik', etc.. According to demands and responses of the consumers authors from the Education Centre Piramida Maribor developed and upgraded bread, confectionery, pasta, ice cream and some other buckwheat dishes.



**Fig. 2.** Tartary buckwheat bread (30% to 50% Tartary buckwheat flour with wheat flour) with added walnuts.



**Fig. 3.** Bread with 30% of Tartary buckwheat flour, and wheat flour, with the addition of dry common buckwheat flowers.

## TECHNIQUES, TECHNOLOGIES AND PRODUCTS

Various techniques and technologies for the manufacture of our products were used, and their sensory quality or acceptance were monitored. Mixtures of buckwheat flour or Tartary buckwheat flour with wheat flour were used in the production (Kreft et al., 2012; Vombergar et al., 2012; 2013; 2015; 2016; 2018; 2020). However, use of Tartary buckwheat in Slovenian gastronomy is less known. At EC Piramida over the past years, more than 100 different products and dishes from Tartary



**Fig. 4.** Tartary buckwheat milk bread (50% Tartary buckwheat flour, and 50% of wheat flour), prepared with milk, eggs, butter and sugar, with the addition of elder (*Sambucus nigra L.*) flowers.



**Fig. 5.** Salted Tartary buckwheat pretzels (mixture of Tartary buckwheat flour (30%) and wheat flour)

buckwheat were developed, and using in gastronomy (Figs. 1 – 18). A positive market response to innovative products was seen. The properties of various sorts of buckwheat dough or mixtures of flours, which were added to the Tartary buckwheat flour, were examined and several technological procedures for the production of buckwheat bread, confectionery and pasta were developed. In the pilot production of **yeasted dough for bread** mixtures of buckwheat flour with wheat flour were produced in different proportions (30-50% buckwheat flour, and the remainder wheat flour). Various leavening agents were used (for example, yeast, yeast starter, sourdough, baking powder, cream of tartar and mineral water). **In confectionery** a mixture of buckwheat and wheat flour in a ratio of 1: 1 was used for the puffy pastry dough (strudels, cream-pies, etc.), puffy pastry yeast dough and a leavened sweet milky dough. The same blend of flour can be used for all kinds of confectioneries, cakes, pies, sponge cakes and biscuits. The preparation of **buckwheat pasta** is simple by using a mixture



**Fig. 6.** Braided bread with 30% to 50% Tartary buckwheat flour, with wheat flour. Sprinkled with sesame or poppy seeds.



**Fig. 7.** Tartary buckwheat braided bread with cheese and wasabi cheese filling, made by Marko Kržan, student of EC Piramida Maribor, Slovenia.



**Fig. 8.** „Potica“ baked cake with walnuts cream filling (to the right), and with poppy seeds filling, in this case made from the mixture of Tartary buckwheat (50%) and wheat flour.



**Fig. 9.** „Piramida“ Tartary apple cake. Gluten-free, in the dough 100% Tartary buckwheat flour, without any addition of wheat flour.

of buckwheat and wheat flour in a ratio of 1:1 (Fig. 12). Rolled and extruded pasta (wide and thin noodles, etc.) were produced. Up to 75% of Tartary buckwheat flour can be used in the production of extruded pasta. Pasta is greenish brown, slightly brighter after drying, while after boiling it becomes dark brown.

The demand for **gluten-free products** in Slovenia and Europe is increasing. Good sensory properties have for example buckwheat sponge cake and buckwheat shortbread biscuits and it is possible to use buckwheat flour or Tartary buckwheat flour as the only flour without the addition of any wheat flour. Buckwheat gingerbread



**Fig. 10.** Buckwheat „brizganci“. Yellow part is made from mixture of Tartary buckwheat flour (if desired with the addition of some wheat flour), the gray parts are made from common buckwheat flour (if desired with the addition of some wheat flour).



**Fig. 11.** Common buckwheat „krapec“ with edible daisy (*Bellis perennis L.*) flowers, produced from common buckwheat flour, and some cottage cheese and sour cream.

is also an excellent gluten-free product. Tartary sponge cake (for cakes) and pie dough are also interesting for introducing gluten-free dishes into the gastronomy. The dough is darker, and after baking it becomes dark brown with a greenish-yellowish shade. However it is much more difficult to use buckwheat flour as the only raw material in breadmaking, for bakeries and 'potica', Slovenian traditional product. Technologies are explored in this direction and we are persistently looking for suitable solutions (Figs. 9, 13, 14).



**Fig. 12.** Tartary buckwheat pasta, in the dough are incorporated dandelion (*Taraxacum officinale* F.H. Wigg) florets.

Some other cereals (e.g., barley, millet, oats, rice) were also tested and we already have some results. All combinations depend also on the quantity and quality of proteins and starch in different flours.

There are many ideas for an interesting offer of gluten-free products and foods. Tartary or common buckwheat groats can be cooked and served with vegetables or mushrooms as side dishes. Buckwheat groats can be also served for dessert, for example with yogurt and fruit. For flavoring you can also add it to ice creams, puddings and yoghurts. Groats can also be baked in an oven after cooking, with the addition of cottage cheese, sour cream, eggs, sugar and butter, or maybe fruits, nuts, etc., but it can also be combined with millet porridge and oat flakes.

In similar way chocolate pralines with Tartary buckwheat and roasted buckwheat flour, with some wine additives for the excellent taste were developed. Tartary buck-



**Fig. 13.** Gluten-free common buckwheat sponge cake with poppy seeds.



**Fig. 14.** Tartary buckwheat honey hearts made of Tartary buckwheat flour (alternatively some replacement with wheat flour) among other ingredients are butter, sugar, buckwheat honey or forest honey (Vombergar et al., 2018).

wheat tea can be sweetened with honey; the best choice would certainly be buckwheat honey. Buckwheat 'žganci' can be prepared from common or Tartary buckwheat flour, and polenta by using maize and Tartary buckwheat flours. The characteristic of Tartary buckwheat products is their bitterness. That can be somehow annoying for an unwitting consumer. Nevertheless, bitterness can be partly softened in the preparation process by adding spices, herbs, chocolate, cocoa, or other ingredients.



**Fig. 15.** Special cooked buckwheat rolls („štruklji“), greenish-yellow layer with Tartary buckwheat flour (and 50% wheat flour), grey layer with common buckwheat flour (and 50% wheat flour) and poppy seeds filling.



**Fig. 16.** Cooked Tartary buckwheat rolls („štruklji“), with poppy seed filling.

Recently the upgrading the offer of buckwheat products by using or adding **edible flowers** to the products is performed (Figs. 3, 4, 11, 12). This trend is becoming more and more popular, and it presents also an excellent decoration. Edible flowers can also affect human health in different ways. Buckwheat bread, confectionery and pasta with the addition of edible flowers, e.g. buckwheat, chamomile, and apricot blossoms, primroses, daisies, violets, etc. could be presented. Learning about and following the trends in nutrition and also market requirements are important catalysts for the offer of novel buckwheat products.



**Fig. 17.** Cooked Tartary buckwheat rolls ("štruklji"), with walnuts filling.



**Fig. 18.** Tartary buckwheat snack sticks (50% Tartary buckwheat flour, and wheat flour).

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## IZVLEČEK

### Novi trendi pripravljanja ajdovih jedi v Sloveniji

Za slovensko tradicionalno kulinariko so značilne nekatere ajdove jedi in izdelki. Predvsem je znana uporaba navadne ajde, ne pa tudi tatarske ajde. Na Izobraževalnem centru Piramida Maribor so razvili več vrst pekovskih in slašičarskih izdelkov iz navadne in tudi tatarske ajde. Pri tem so sledili trendom in smernicam sodobne gastronomije in povpraševanjem potrošnikov po zdravih in zanimivih jedeh. Uporabljene so bile različne tehnologije izdelave (različni deleži navadne in tatarske ajdove moke v testu, različna vzhajalna in rahljajalna sredstva - kvas, kislo testo, pecilni prašek, vinski kamen, mineralna voda, brez kvasa). Predstavljeno je več vrst kruhov (tatarski ajdovi kruhi, pisani kruhi, zmesni kruhi, pletenice iz tatarske ajde), slaščic (torte, pite, kremne rezine, zavitki, biskviti) in testenin iz navadne in tatarske ajde ter tudi drugih mok. Praženo ajdovo moko so uporabili tudi za polnilo za čokoladne pralineje, kuhano ajdovo kašo pa za sestavino v sladoledu. Predstavljena je tudi možnost uporabe navadne in tatarske ajde za izdelavo kruhov in sladic brez glutena, saj se v sodobnih gastronomskih trendih zaznava povpraševanje po izdelkih brez glutena. Pripravljenih je več ajdovih izdelkov (kruhovi, slaščice in testenine) z užitnimi cvetovi.