

Healthier Bread with Chia Products



Chia is an ancient edible plant-based seed from the plant *Salvia hispanica L.* that can be consumed as a whole seed, seed flour, seed mucilage and seed oil (Zettel, 2016). Chia seed is also considered as ‘Novel Food’ by the European Union with no more than 10% of usage in various food categories. (Turck et al, 2019).

Good Dose of Fibre, Protein, Minerals, Omega-3 and Antioxidant

The incorporation of chia products in bread have become a healthier alternative for gluten-free products which are suitable for people with celiac disease (Huerta et al., 2018).

High dietary fibre content in chia seed promotes the feeling of fullness or post-meal satiety. It also decreases the feeling of subsequent hunger besides increasing the stool volume. Chia seeds contain high proportion of linoleic and alpha-linolenic (ALA) fatty acids,

making them a great source of Omega-3 that is essential for brain function. Meanwhile, high concentration of Omega-3 in chia oil can help to fix dyslipidemia by increasing LDL, triglyceride and lower HDL cholesterol (Ullah et al., 2016; Zhang et al., 2020).

Chia flour contains approximately two times higher protein content compared to wheat flour (Romankiewicz et al., 2017) along with a dense source of essential minerals such as calcium, phosphorus, potassium, zinc, magnesium and copper (Migliavacca et al., 2014). Natural antioxidants' source in chia seeds help in fighting the production of free radicals, which can damage cell molecules and contribute to aging (Buehler, 2012).

Better Bread Quality with Chia Products

Chia seeds form a mucilaginous transparent gel composed of soluble fibre in the presence of water (Spada et al., 2014). Hence, chia seed can be used as hydrocolloids in gluten-free breads to provide better structure and increase the volume for baked products (Huerta et al., 2018). Chia mucilage can also be used to substitute fats in breads and cakes (Fernandes & Salas-Mellado, 2017).

The high fat content of whole chia flour may promote a volume increase in the dough, acting as a gas retainer that softens the texture as the fat layers and gluten network are intermingled (Luna-Pizarro et al., 2015). The incorporation of chia flour can also delay the retrogradation of amylopectin which is responsible for the bread staling (Iglesias-Puig & Haros, 2013). Dietary fibre in chia can also prolong freshness by keeping the water content in bread (Romankiewicz et al., 2017).

In a nutshell, the incorporation of chia as seed, oil or flour improve the nutritional profile of bread by increasing their fibre, protein, minerals, Omega-3, essential fatty acids and antioxidant compounds. It also improves the bread quality by providing better texture with longer shelf life.

At DPO, we are honoured to be in partnership with **Benexia** to bring you a range of ingredient choices that could elevate your quality of life.

References

Buehler. (2012). The Free Radical Theory of Aging and Antioxidant Supplements: A Systematic Review. *Journal of Evidence-Based Complementary & Alternative Medicine*, 17(3), 218-220.

<https://doi.org/10.1177/2156587212441939>

Fernandes, S. S., & Salas-Mellado, M. D. L. M. (2017). Addition of chia seed mucilage for reduction of fat content in bread and cakes. *Food Chemistry*. 2017, 227, 237–244.

<https://doi.org/10.1016/j.foodchem.2017.01.075>

Huerta, K., Soquetta, M., Alves, J., Stefanello, R., Kubota, E. & Rosa, C. S. (2018). Effect of flour chia (*Salvia hispanica* L.) as a partial substitute gum in gluten free breads. *International Food Research Journal*, 25(2), 755-761. Retrieved from

[http://www.ifrj.upm.edu.my/25%20\(02\)%202018/\(43\).pdf](http://www.ifrj.upm.edu.my/25%20(02)%202018/(43).pdf)

Iglesias-Puig, E.; Haros, M. Evaluation of performance of dough and bread incorporating chia (*Salvia hispanica* L.). *European Food Research and Technology*, 237, 865–874.

<https://doi.org/10.1007/s00217-013-2067-x>

Luna-Pizarro, P., Almeida, E. L., Coelho, A. S., Sammán, N. C., Hubinger, M. D., & Chang, Y. K. (2015). Functional bread with n-3 alpha linolenic acid from whole chia (*Salvia hispanica* L.) flour. *Journal of Food Science and Technology*, 52(7), 4475–4482.

<https://doi.org/10.1007/s13197-014-1477-5>

Migliavacca, R. A., Silva, T. R. B., Vasconcelos, A. L. S., Filho, W. M., & Baptistella, J. L. C. (2014). The cultivation of chia in Brazil: Future and prospects. *Journal of Agronomic Sciences* 3(1): 161-179.

Romankiewicz, D., Hassoon, W. H., Cacak-Pietrzak, G., Sobczyk, M., Wirkowska-Wojdyła, M., Ceglińska, A., & Dziki, D. (2017). The Effect of Chia Seeds (*Salvia hispanica* L.) Addition on Quality and Nutritional Value of Wheat Bread. *Journal of Food Quality*, 2017, 1–7.

<https://doi.org/10.1155/2017/7352631>

Spada, J. C., Dick, M., Pagno, C. H., Vieira, A. C., Bernstein, A., Coghetto, C. C., Marczak, L. D. F., Tessaro, C. I., Cardoso, N. S. M. & Flores, S. H. (2014). Physical, sensory chemistry soy desserts, prepared with mucilage chia. *Ciência Rural*, 44(6): 374-379.

<https://doi.org/10.1590/S0103-84782014000200029>

Turck, D., Castenmiller, J., de-Henauw, S., Hirsch-Ernst, K., Kearney, J., Maciuk, A., Mangelsdorf, I. McArdle, H., Naska, A., & Pelaez, C. (2019). Safety of chia seeds (*Salvia hispanica* L.) as a novel food for extended uses pursuant to Regulation (EU) 2015/2283. *EFSA Journal*. 17(4), 05657–05716.

<https://doi.org/10.2903/j.efsa.2019.5657>

Ullah, R., Nadeem, M., Khalique, A., Imran, M., Mehmood, S., Javid, A., & Hussain, J. (2016). Nutritional and therapeutic perspectives of Chia (*Salvia hispanica* L.): A review. *Journal of Food Science and Technology*, 53(4), 1750–1758.

<https://doi.org/10.1007/s13197-015-1967-0>

Zettel, V. (2016). Characterization of the effects of chia gels on wheat dough and bread rheology as well as the optimization of bread roll production with the Nelder-Mead simplex method. Faculty of Natural Sciences, University of Hohenheim, Stuttgart.

<https://pdfs.semanticscholar.org/f8fa/0f6ff6702e9b98337d5158fc8750fea2a980.pdf>

Zhang, A., Singh, S., Craig, J. and Downie, L., 2020. Omega-3 Fatty Acids and Eye Health: Opinions and Self-Reported Practice Behaviors of Optometrists in Australia and New Zealand. *Nutrients*, 12(4), p.1179. <https://www.mdpi.com/2072-6643/12/4/1179>