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Millet Cookies with Pumpkin Pulp as a Functional Product

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Abstract: This research work was carried out to explore the possibility of utilization of underutilized but highly nutrient rich pearl millet and pumpkin pulp in cookies. Cookies are generally made from Maida flour that provides high energy but low in fibre. Bakery products are often high in energy and fat and the most consumed bakery products is cookies. This research work proposed a healthy composition of cookies by incorporating pumpkin pulp while replacing usual principal ingredients like Maida flour with Pearl Millet (Bajra) and refined sugar with honey. The quality cookies were prepared from 50% pearl millet flour and 50% pumpkin pulp,60% pearl millet flour and 40% pumpkin pulp, 70% pearl millet flour and 30% pumpkin pulp and 80% pearl millet flour and 20% pumpkin pulp. There was decrease in carbohydrates and fat and increase in moisture, vitamins, ash and dietary fibre .Good quality cookies can be prepared by substituting pumpkin pulp(40%) with pearl millet flour (60%). This study evaluated the health benefits of millet pumpkin cookies based on their nutritional value and sensory analysis. pearl Millets are rich in all nutritious aspects like vitamins, fats, protein and also high in micronutrients such as folic acid, niacin and Vitamin B6, B complex vitamins that help in providing various medical and health benefits, millets into diet will reduce the risk of cardiovascular problems helps in treating constipation, diabetes ,obesity, hyperlipidemia. Pumpkin flesh is rich in fibre, vitamin C, vitamin E, Mg, K and a variety of carotenoids being the important sources of these amazing phytonutrients and its prevent various diseases, such asantidiabetic, antioxidant, anticarcinogenic, and anti-inflammatory.

Keywords: Cookies, Pearl Millet, Pumpkin, Health Benefits, Nutrient Quality, Sensory Quality

REFERENCES

- [1]. Archana R, Asna K, Salil S, Byron H (2004) Influence of depigmentation of pearl millet (Pennisetum gluacum L) on sensory attributes, nutrient composition and in vitro digestion of biscuits. LWT 37: 184-192
- [2]. Boobier WJ, Baker JS, Davies B. Development of a healthy biscuit: an alternative approach to biscuit manufacture. Nutrition J 2006; 5(7): 1-7.
- [3]. Anonymous. Annual Report of All India Coordinated Research Project, ICAR, New Delhi, 2009.
- [4]. Toan, N.V. and Thuy, N.T.T. (2018). Production of High Quality Flour and the Made from Pumpkin. International Journal of Food Science and Nutrition, 3(5), 157-166.
- [5]. Kohli D, Kumar A, Kumar S, Upadhaya S. Waste Utilization of Amla Pomace and Germinated Finger Millets for Value Addition of Biscuits. Curr Res Nutr Food Sci 2019; 7(1): 272-279.
- [6]. Kaur KD, Jha A, Sabikhi L, Singh AK. Significance of coarse cereals in health and nutrition: a review. J Food Sci Technol 2014; 51(8):1429-1441
- [7]. Rismaya, R., Syamsir, E. and Nurtama, B. (2018). The Effect pumpkin Flour Addition to fiber, PhysicoChemical and Muffin Sensory. JurnalTeknologi dan IndustriPangan, 29(1), 58–68. https:// doi.org/10.6066/jtip.2018.29.1
- [8]. Kulthe AA, Pawar VD, Kotecha PM, Chavan UD, Bansode VV. Development of high protein and lowcalorie cookies. J Food Sci Technol 2014; 51(1):153-157.
- [9]. Nambiar, Vanisha S., et al. "Potential functional implications of pearl millet (Pennisetum glaucum) in health and disease." Journal of Applied Pharmaceutical Science Issue (2011): 62-67.

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- [10]. Malathi D, Padma A and Subbulakshmi B. Development and quality evaluation of multi millet cookies. J Nutr Food Sci 2017, 7:3 (Suppl)
- [11]. Pathak HC. Role of Millets in Nutritional Security of India. New Delhi. National Academy of Agricultural Sciences 2013, 1-16.
- [12]. Habiyaremye C, Matanguihan JB, Guedes JDA, Ganjyal GM, Whiteman MR, Kidwell KK et al. Proso millet (Panicum miliaceum L.) and its potential for cultivation in the pacific northwest, U.S.: A review. Frontiers in Plant Science. 2017;7:1961. Doi: 10.3389/fpls.2016.01961
- [13]. Singh, B., Bajaj, M., Kaur, A., Sharma, S. and Sidhu, J. (1993). Studies on development of high protein biscuits from composite flours. Plant Foods Human Nutrition, 43(2), 181-189. https://doi.org/10.1007/ BF01087922
- [14]. Veena B. Nutritional, functional and utilization studies on barnyard millet. M. Sc. Thesis. Submitted to University of Agricultural Sciences, Dharwad, Karnataka, India 2003
- [15]. Chandrasekara A, Shahidi F. Content of insoluble bound phenolics in millets and their contribution to antioxidant capacity. Journal of Agriculture and Food Chemistry. 2010;58(11):6706-6714
- [16]. NIN., Nutritive value of Indian Foods, Ed Gopalan and Deosthale, National Institute of Nutrition, Hyderabad, 2003
- [17]. O.S.K.Reddy (2017), Smart Millet and Human Health, Green Universe Environmental Services Society
- [18]. Vilcacundo, R., C. Martınez-Villaluenga, and B. Hernandez-Ledesma. 2017. Release of dipeptidyl peptidase IV, a-amylase and a-glucosidase inhibitory peptides from quinoa (Chenopodium quinoa Willd.) during in vitro simulated gastrointestinal digestion. Journal of Functional Foods 35:531–539. doi: 10.1016/j.jff.2017.06.024.
- [19]. Rajasekaran NS, Nithya M, Rose C & Chandra TS (2004). The Effect of Finger millet feeding on the early responses during the process of wound
- [20]. Chandrasekara A & Shahidi F (2011). Antiproliferative potential and DNA scission inhibitory activity of phenolics from whole millet grains. Journal of Functional Foods: 3: 159-170.
- [21]. Chandrasekara A, Shahidi F. Content of insoluble bound phenolics in millets and their contribution to antioxidant capacity. Journal of Agriculture and Food Chemistry. 2010;58(11):6706-6714.
- [22]. Sharma, A., and Kapoor, A. C., Levels of antinutritional factors in pearl millet as affected by processing treatments and various types of fermentation. Plant foods human nutrition, 1996, 49(3), 241-52.
- [23]. Rao, D. and Deepika, T. 2016. Nutritional comparison of millets, cereals, oats and quinoa. Indian Farming,65(12):14-17.
- [24]. Kumar, A., Tomer, V., Kaur, A. et al. Millets: a solution to agrarian and nutritional challenges. Agric and Food Secur 7, 31 (2018).
- [25]. Anon 2008c. Pumpkin. http://en.wikipedia.org/wiki/pumpkin (Accession date: 24.06.2008)
- [26]. Caili FU, Huan Shi, Ouanlong LI 2006. A review on pharmacological activities and utilization technologies of pumpkin. Pl Food Hum Nutr 61:73-80
- [27]. Lee YK, Chung WI, Ezura H 2003. Efficient plant regeneration via organogenesis in winter squash (Cucurbita maxima). Plant Sci 164:413-418
- [28]. McCreight, J.D., Cultivation and Uses of Cucurbits, in book Plant Genetics and Genomics: Crops and Models, Volume 20 - Genetics and Genomics of Cucurbitaceae, Edited by Grumet, R., Katzir, N., Garcia-Mas, J., Springer International Publishing AG, 2017, pp. 1 – 12, DOI 10.1007/7397_2016_2
- [29]. Ahmad, Gufran, and Abrar A. Khan. "Pumpkin: horticultural importance and its roles in various forms; a review." Int. J. Hortic. Agric 4 (2019): 1-6.
- [30]. Gajewski, M., Radzanowska, J., Danilcenko, H., Jariene, E, Cerniauskiene, J., Quality of Pumpkin Cultivars in Relation to Sensory Characteristics. NotulaeBotanicae Horti Agrobotanici 2008, 36 (1), 73-79
- [31]. Seo, J.S., Burri, B.J., Quan, Z., Neidlinger, T.R., Extraction and chromatography of carotenoids from pumpkin. Journal of Chromatography A 2005, 1073, 371–375
- [32]. Islam, M., Jothi, J.S., Habib, Md.R., Iqbal, A., Evaluation of Nutritional and Sensory Quality Characteristics of Pumpkin Pies. International Journal of Emerging Trends in Science and Technology 2014, 01(07), 1091-

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- [33]. Sirohi PS, Choudhury B, Kalda TS 1991. Pumpkin 'Pusa Vishwas' for tropical and subtropical region. Indian Hort 36(1):24-26
- [34]. Boileau TWM, Moore AC, Erdnman JW 1999. Carotenoids and vitamin A. In: Antioxidant status, diet, nutrition and health. Papas AM (ed), CRC Press, p 133-158
- [35]. Chakravarty I 2000. Food based strategies to control vitamin A deficiency. Food Nutr Bull 21:135-143
- [36]. Sun, W.; Sang, Y.; Zhang, B.; Yu, X.; Xu, Q.; Xiu, Z.; Dong, Y. Synergistic effects of acarbose and an Oroxylum indicum seed extract in streptozotocin and high-fat-diet induced predibetic mice. Biomed. Pharmacother. 2017, 87, 160–170. [CrossRef
- [37]. Song, H.; Sun, Z. Hypolipidaemic and hypoglycaemic properties of pumpkin polysaccharides. 3 Biotech 2017, 7, 159. [CrossRef]
- [38]. Yadav, M., S. Jain, R. Tomar, G.B.K.S. Prasad, and H. Yadav. 2010. Medicinal and biological potential of pumpkin: An updated review. Nutr. Res. Rev. 23(2):184–190. doi: 10.1017/S0954422410000107
- [39]. Al-Anoos, I.M., El-dengawi, R., Hasanin, H.A., Studies on Chemical Composition of Some Egyptian and Chinese pumpkin (Cucurbita maxima) Seed Varieties. Journal of Plant Science and Research 2015, 2(2), 137
- [40]. Jin, H., Studies on the extraction of pumpkin components and their biological effects on blood glucose of diabetic mice, Journal of Food Drug Analysis 2013, 21(2), 184-189
- [41]. Quanhong, LI, Caili, F, Yukui, R, et al. (2005) Effects of protein-bound polysaccharide isolated from pumpkin on insulin in diabetic rats. Plant Food Hum Nutr 60, 13–16.CrossRefGoogle ScholarPubMed
- [42]. Muruganantham, N., S. Solomon, and M.M. Senthamilselvi. 2016. Antimicrobial activity of Cucurbita maxima flowers (Pumpkin). J. Pharmacogn. Phytochem. 5(1):15–18.
- [43]. Huang XE, Hirose K, Wakai K, et al. (2004) Comparison of lifestyle risk factors by family history for gastric, breast, lung and colorectal cancer. Asian Pac J Cancer Prev 5, 419–427.
- [44]. Mala, K.S., P. Aathira, E.K. Anjali, K. Srinivasulu, and G. Sulochanamma. 2018. Effect of pumpkin powder incorporation on the physico-chemical, sensory and nutritional characteristics of wheat flour
- [45]. Ptichkina, N.M.; Markina, O.A.; Rumyantseva, G.N. Pectin extraction from pumpkin with the aid of microbial enzymes. Food Hydrocoll. 2008, 22, 192–195