SORGHUM A Functional Food

Sorghum provides functional attributes to both food applications and the health and nutrition of those enjoying it. Due to the unique carbohydrate and protein cross-linkages within the grain, sorghum maintains moisture and textural integrity better and longer than other cereal grains. This makes it ideal for use in soups and stews, batch cooking for foodservice and baked goods.

OBESITY^{1,2,3,4,5}

- Whole grain sorghum is an excellent source of fiber & protein; both of which research has shown to lead to lower body weight.
- Research has shown that antioxidants from pearled sorghum grain showed decreased fat absorption due to inhibited fat and carbohydrate digestion.

INFLAMMATION^{6,7}

- Sorghum has higher antioxidant levels and antiinflammatory properties than blueberries.
- Research has shown that sorghum leaf extract has more anti-inflammatory properties than Ibuprofen.
- A serving of cooked whole grain sorghum is an excellent source of protein, zinc, selenium and copper, which may contribute to a healthy immune system.

DIABETES^{8,9,10}

- Whole grain sorghum is an excellent source of fiber, including high levels of resistant starch, which slow digestion and regulate blood sugar levels.
- Research shows that sorghum bran polyphenol extract improves blood glucose to a similar effect as diabetes medication.

HEART HEALTH",12

Research has shown that sorghum contributes to healthy blood pressure and cholesterol levels.

CANCER¹³

Abundant research has demonstrated a link between whole grain sorghum consumption and decreased risk of various cancers, including breast, esophageal and colon.

MENTAL HEALTH¹⁴

Cooked whole grain sorghum is a source of tryptophan, an amino acid that research has shown may be an effective approach to decrease anxiety and increase positive mood in healthy individuals.

ANTIMICROBIAL^{15,16}

• An exciting area of research is looking at antimicrobial properties of sorghum in both airborne and foodborne illnesses.

Sorghum is an excellent source of 12 essential nutrients, naturally gluten-free and non-GMO. Whole grain sorghum is a natural source of antioxidants, which may help to lower your risk of cancer, diabetes, heart disease and some neurological diseases. In addition to the robust nutrition profile, sorghum provides exceptionally unique, abundant and diverse antioxidants, which research has linked to a variety of health and nutrition functional attributes.

Questions? Reach out to Lanier Dabruzzi, MS, RD, LD at lanier@sorghumcheckoff.com.



SORGHUM A Functional Food

¹Clark MJ, Slavin JL. The effect of fiber on satiety and food intake: a systematic review. J Am Coll Nutr. 2013;32(3):200-11. doi: 10.1080/07315724.2013.791194. PMID: 23885994.

² Chung I-M, Yeo M-A, Kim S-J, Kim M-J, Park D-S, Moon H-I. Antilipidemic activity of organic solvent extract from Sorghum bicolor on rats with diet-induced obesity. Human & Experimental Toxicology. 2011;30(11):1865-1868. doi:10.1177/0960327110390066 ³ Anunciação PC, Cardoso LM, Alfenas RCG, Queiroz VAV, Carvalho CWP, Martino HSD, Pinheiro-Sant'Ana HM. Extruded sorghum consumption associated with a caloric restricted diet reduces body fat in overweight men: A randomized controlled trial. Food Res Int. 2019 May;119:693-700. doi: 10.1016/j.foodres.2018.10.048. Epub 2018 Oct 15. PMID: 30884705.

⁴ Heather J Leidy, Peter M Clifton, Arne Astrup, Thomas P Wycherley, Margriet S Westerterp-Plantenga, Natalie D Luscombe-Marsh, Stephen C Woods, Richard D Mattes, The role of protein in weight loss and maintenance, The American Journal of Clinical Nutrition, Volume 101, Issue 6, June 2015, Pages 1320S-1329S, https://doi.org/10.3945/ajcn.114.084038

 ⁵Ofosu FK, Elahi F, Daliri EB-M, Yeon S-J, Ham HJ, Kim J-H, Han S-I, Oh D-H. Flavonoids in Decorticated Sorghum Grains Exert Antioxidant, Antidiabetic and Antiobesity Activities. Molecules. 2020; 25(12):2854. https://doi.org/10.3390/molecules25122854
⁶ Burdette A, Garner PL, Mayer EP, Hargrove JL, Hartle DK, Greenspan P. Anti-inflammatory activity of select sorghum (Sorghum bicolor) brans. J Med Food. 2010 Aug;13(4):879-87. doi: 10.1089/jmf.2009.0147. PMID: 20673059.

 ⁷ Makanjuola, S. B. et al, 2018, Apigenin and apigeninidin isolates from the Sorghum bicolor leaf targets inflammation via cyclooxygenase-2 and prostaglandin-E2 blockade. International Journal of Rheumatic Diseases. https://doi.org/10.1111/1756-185X.13355
⁸ Barros, F., Awika, J. and Rooney, L.W. (2014), Effect of molecular weight profile of sorghum proanthocyanidins on resistant starch formation. J. Sci. Food Agric., 94: 1212-1217. https://doi.org/10.1002/jsfa.6400

⁹ Kim, J., Park, Y. Anti-diabetic effect of sorghum extract on hepatic gluconeogenesis of streptozotocin-induced diabetic rats. NutrMetab(Lond)9,106 (2012). https://doi.org/10.1186/1743-7075-9-106

¹⁰ Higgins JA. Resistant starch: metabolic effects and potential health benefits. J AOAC Int. 2004 May-Jun;87(3):761-8. PMID: 15287677.

¹¹ Carr TP, Weller CL, Schlegel VL, Cuppett SL, Guderian DM Jr, Johnson KR. Grain sorghum lipid extract reduces cholesterol absorption and plasma non HDL cholesterol concentration in hamsters. J Nutr . 2005 Sep;135(9):2236 40. doi : jn /135.9.2236. PMID: 16140904.

¹² Vasudeva Kamath, Sajeeda Niketh, Arun Chandrashekar, P.S. Rajini, Chymotryptic hydrolysates of -kafirin, the storage protein of sorghum (Sorghum bicolor) exhibited angiotensin converting enzyme inhibitory activity, Food Chemistry, Volume 100, Issue 1, 2007, Pages 306-311, ISSN 0308-8146, https://doi.org/10.1016/j.foodchem.2005.10.004.

¹³ Kamath, V. et al, 2007, Chymotryptic hydrolysates of kafirin, the storage protein of sorghum (sorghum bicolor) exhibited angiotensin converting enzyme inhibitory activity. Food Chemistry. https://doi.org/10.1016/j.foodchem.2005.10.004

¹⁴Kikuchi AM, Tanabe A, Iwahori Y. A systematic review of the effect of L-tryptophan supplementation on mood and emotional functioning. J Diet Suppl. 2021;18(3):316-333. doi: 10.1080/19390211.2020.1746725. Epub 2020 Apr 10. PMID: 32272859.

¹⁵ Gilchrist AK, Smolensky D, Ngwaga T, Chauhan D, Cox S, Perumal R, Noronha LE, Shames SR. High-polyphenol extracts from Sorghum bicolor attenuate replication of Legionella pneumophila within RAW 264.7 macrophages. FEMS Microbiol Lett. 2020 Apr 1;367(7):fnaa053. doi: 10.1093/femsle/fnaa053. PMID: 32188994; PMCID: PMC8023677.

¹⁶ Schnur SE, Amachawadi RG, Baca G, Sexton-Bowser S, Rhodes DH, Smolensky D, Herald TJ, Perumal R, Thomson DU, Nagaraja TG. Antimicrobial Activity of Sorghum Phenolic Extract on Bovine Foodborne and Mastitis-Causing Pathogens. Antibiotics (Basel). 2021 May 17;10(5):594. doi: 10.3390/antibiotics10050594. PMID: 34067596; PMCID: PMC8156376.

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