

Pharmacological action of BlackBerry seeds

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Abstract: JAMUN (*Syzygium cumini*) commonly known as Dark berry, Dark plum, Jambul or Java Plum, is expansive evergreen, glabrous tree, it is conveyed all through India, Sri Lanka, Malaya, and Australia. Annually the trees deliver elongated or ellipsoid natural products (berries) [16]. They are green when crude and purplish dark when completely ready. An evaluated 537 million grown-ups matured 20–79 a long time around the world (10.5% of all grown-ups in this age group) have diabetes. By 2030, 643 million, and by 2045, 783 million grown-ups matured 20–79 a long time are anticipated to be living with diabetes. Diabetes mellitus (DM) too known as essentially diabetes, is a bunch of metabolic maladies in which there are tall blood sugar levels over a drawn out period This tall blood sugar produces the indications of visit urination, expanded thirst, and expanded starvation. Untreated, diabetes can cause numerous complications [1]. Indian blackberry, moreover known as Java plum, dark plum, jambolan, or jamun, is a tropical evergreen tree in the Myrtaceae class of blossoming plants. It is for the most part utilized for routine treatment of loose bowels, ulcers, irritation, and diabetes mellitus. It is a great source of anthocyanin, which is valuable against pain relieving characteristics, and it has therapeutic benefits. Moreover, it has antineoplastic, radio protective, and chemo preventive qualities. [2]

Keywords: Dietary value, Antidiabetic, anticancer, antioxidant

INTRODUCTION

Plants are profoundly important and utilized since thousands of a long time by the individuals as the medication to remedy numerous infections. Man has continuously looked for that blessing of nature that mends the body and relieves the intellect [17]. Plants are exceedingly profitable and utilized since thousands of a long time by the individuals as the pharmaceutical to remedy numerous illnesses. Man has continuously looked for that blessing of nature that recuperates the body and alleviates the mind. *Syzygium cumini*, a part of the Rutaceae family, is too known as *Eugenia cumini* and *Syncytium jejunum*. Other names for Indian

blackberry incorporate Kabul, Dark Plum, Java Plum, Gambling, and Jams [2]. Diabetes Mellitus is an endocrinological infection besides is a metabolic community heterogeneous tribulation inferable to an abnormality in the discharge of affront and affront activity or both. Affront levels that are truant or diminished contribute to constant unusually tall blood sugar and affectability of glucose [3]. The tree as it were bears natural product once a year, and the taste of the berries is sweetish-sour. The ready natural products are utilized to create wine, squash, jams, and wellbeing refreshments. All components of the tree, but most altogether the seeds, are utilized to oversee diabetes mellitus in association with its dietary usage [2]. James Makes a difference to decrease Weight Misfortune.



Fig:1 Branches of jamun seed [17]

Properties of BlackBerry:

Jamun is a powerhouse of supplements. It is wealthy in vitamins A and C, basic for keeping up solid skin and boosting resistance. Antiquated Rishies and Munies did sufficient investigate works on blackberries. Concurring to them, the natural product is little, harsh, acrid, sweet, acidic, coolant, destroys hack, pitt (bile) and vat (wind), blood circulator, profoundly making a difference in absorption and antiacidic, valuable in skin illnesses, activator of liver, thirst quencher, hostile to diarrhoeic, destructs terrible microscopic organisms in stomach and viable in respiratory system. [4]

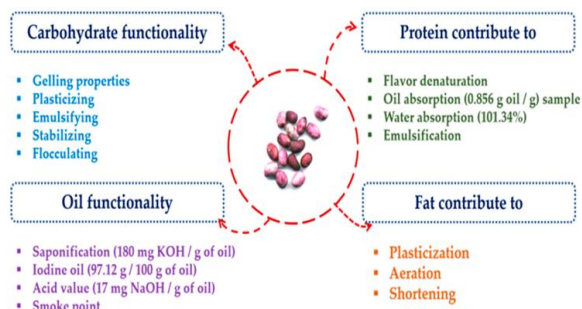


Fig:2 [18]

Nutritional composition of Indian blackberries:

Energy	60 kcal
Carbohydrates	15.56 g
Fat	0.23 g
Protein	0.72 g
Water	83.13 g
Vitamin A	3 IU
Thiamine (vit. B1)	0.006 mg (1%)
Riboflavin (vit. B2)	0.012 mg (1%)
Niacin (vit. B3)	0.260 mg (2%)
Pantothenic acid (B5)	0.160 mg (3%)
Vitamin B6	0.038 mg (3%)
Vitamin C	14.3 mg (17%)
Calcium	19 mg (2%)
Iron	0.19 mg (1%)
Magnesium	15 mg (4%)
Phosphorus	17 mg (2%)
Potassium	79 mg (2%)
Sodium	14 mg (1%)

Source: USDA Nutrient Database

Antidiabetic:

It is estimated that 366 million people had DM in 2011; by 2030 this would have risen to 552 million. The number of people with type 2 DM is increasing in every country with 80% of people with DM living in low- and middle-income countries [5]. The chronic hyperglycemia of diabetes mellitus (DM) is associated with end organ damage, dysfunction, and failure in organs and tissues including the retina, kidney, nerves, heart, and blood vessels. [6] Type 1 diabetes, Type 2 diabetes, Gestational diabetes, Genetic defects (beta cell development and insulin action), Neonatal diabetes Endocrine diseases, Blood related diseases diabetes Drug-induced diabetes Immunemediated diabetes, Other genetic syndromes. Use of Diabetes Causes Diabetes Islet endocrine cells (beta and alpha) in the pancreas secrete insulin from beta cells and glucagon hormone from alpha cells. Both beta cells and alpha cells adjust hormone release according to the sugar environment and regulate blood sugar levels.

Under normal conditions, when blood sugar rises, beta cells in the blood secrete more insulin [7].

The later and unused terms of insulin-dependent (IDDM) or noninsulindependent (NIDDM) that were arranged by UN office in 1980 and 1985 have vanished and moreover the terms of most recent classification framework recognizes four sorts of polygenic clutter mellitus: sort 1 (IDDM), sort 2 (NIDDM),—other particular types and gestational polygenic clutter (WHO proficient Committee 1999) [1]. The Mycaminose at the dosage of 50 mg / kg, ethyl acetic acid derivation and methanol extricated compounds of *Syzygium cumini* Linn. seeds at the measurements of 200 mg/kg and 400 mg/kg separately was managed to streptozotocin-induced diabetic rats and found that Mycaminose and ethyl acetic acid derivation and methanol extricates of *Syzygium cumini* Linn [8]. Pharmacological considers uncovered that the organization of powder shape of jamun seeds, its ethanolic, methanolic, ethyl acetic acid derivation and fluid extricates either orally or infused intraperitoneally were competent of enhancing diabetes [9]. The standard medicate, glibenclamide diminished blood sugar level in 15 days treatment [10].

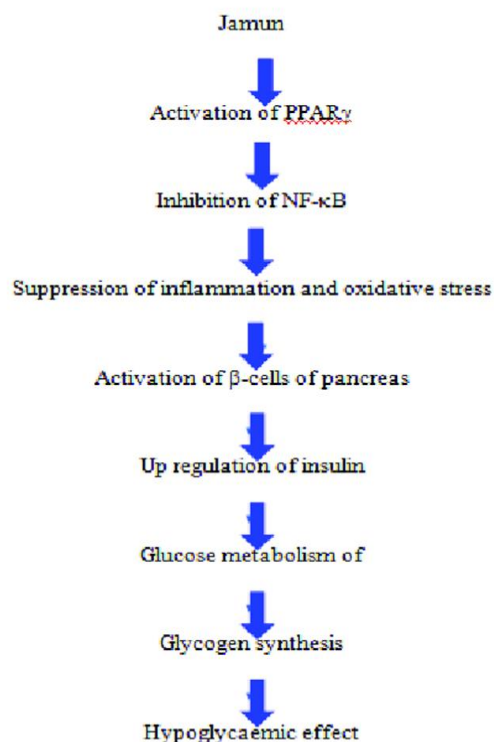


Fig:3 [19]

Anticancer:

Cancer is one of the most life undermining infections, which speaks to a considerable burden in the community and shows up to be a prime cause of concern. Multidisciplinary logical examinations are making best endeavors to combat the disease, but the sure-shot, idealize remedy is however to be brought into the world of pharmaceutical [11]. Discovered that the jamun seed extricate caused human hepatoma cells to experience apoptosis. In this think about, the mitochondrial potential and a hepatocyte atomic factor-1 were both down directed when shifted extricate concentrations 10, 20, and 40 g/mL were utilized [13]. The jamun seed extricate managed orally (500–1500 mg/kg body weight) to mice some time Antioxidant:

recently the presentation to genotoxic carcinogens (7,12-dimethylbenz (α)anthracene and urethane) anticipated the breakage of pBR322 DNA, altogether diminished the chromosomal distortions in metaphase, and decreased the arrangement of micronuclei in polychromatic erythrocytes [12]. The crisply collected natural products were chopped, seeds were taken out at that point shade-dried and ground into powdered shape. The methanolic extricates of the seeds were arranged by permeating the dried ground plant fabric (100 g) with 95% methanol and at that point concentrating it to dryness beneath decreased weight. Stock arrangements of 20 mg/mL were arranged by dissolving 95% methanolic extricate in DMSO [11].

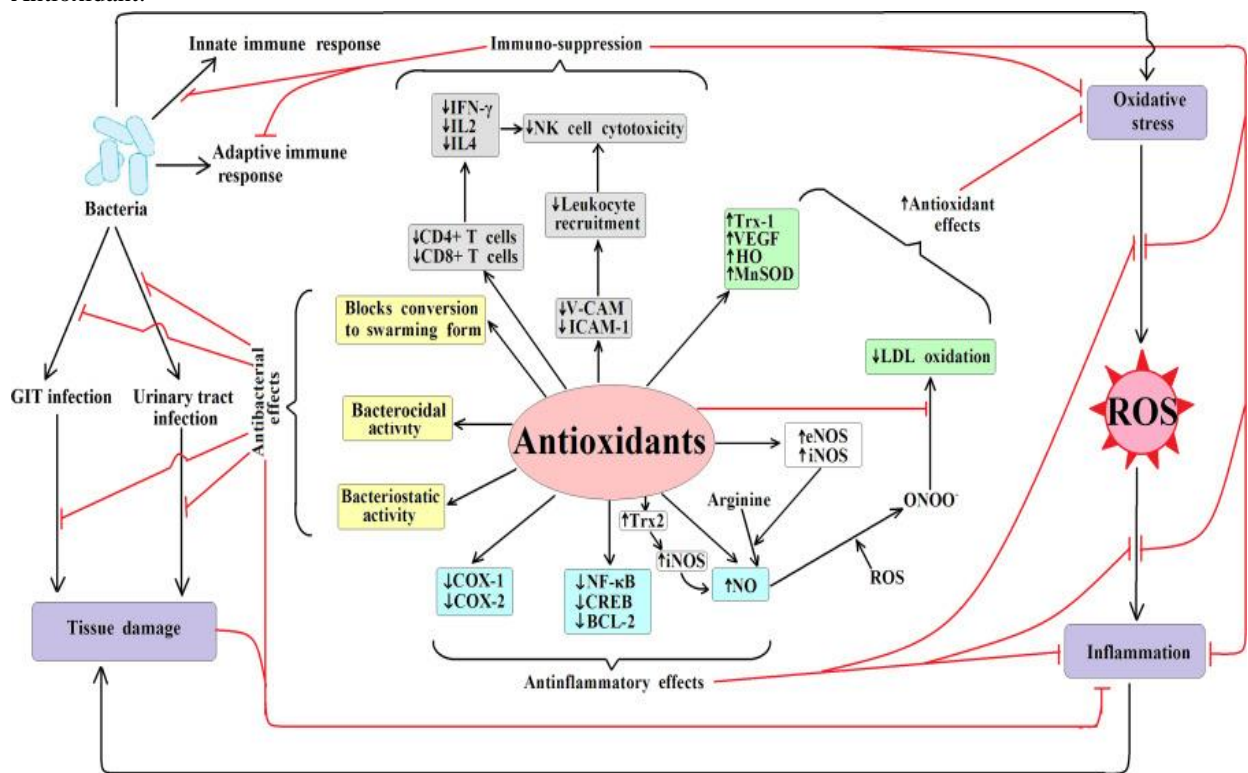


Fig:4 [20]

Jamun seed extricate appears to be an cheap source of characteristic cancer prevention agents that can be utilized as dietary antioxidant supplement in nourishment and bioactive substances in the makeup and pharmaceutical industries. Antioxidants, both in common and manufactured shapes, are able to rummage free radicals and restrain oxidation forms in the human body [15]. Plants are the potential source of normal cancer prevention agents. Normal cancer prevention agents or phytochemical cancer prevention

agents are the auxiliary metabolites of plants (Walton, and Brown,1999). Carotenoids, flavonoids, cinnamic acids, benzoic acids, folic corrosive, ascorbic corrosive, tocopherols, tocotrienols etc [14]. The phenolics (gallic acid, ellagic corrosive, ferulic corrosive, (+)-catechin, and quercetin) of seeds started from underutilized innate dark jamun landraces found in the Gir woodland locale of India appeared critical antiradical action against DPPH

Therapeutic use of jamun:

History of medicinal usage of jamun is marked by its prescribed use by Charkha and Sushruta for curing many diseases like diarrhoea, obesity, vaginal discharge, menstrual disorders, haemorrhage, etc^[16].

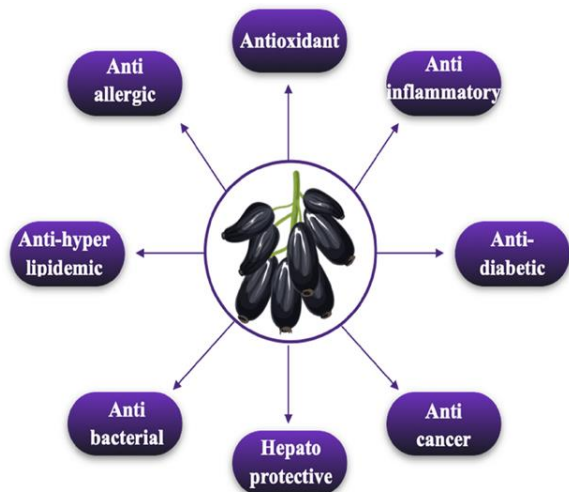


Fig 5^[21]

CONCLUSION

Jamun seeds have a long history of medicinal use and show promise in the treatment of diabetes, cancer prevention, and as antioxidants.

Further research is needed to explore their full pharmacological potential and safety profile.

REFERENCE

[1] Roshan Kumar, Purabi Saha, Yogendra Kumar, Soumitra Sahana, Anubhav Dubey, Om Prakash. A Survey ON DIABETES MELLITUS: TYPE1 & TYPE2. WORLD Diary OF Drug store AND PHARMACEUTICAL SCIENCES SJIF Affect Figure 7.632 Volume 9, Issue 10, 838-850 Survey Article ISSN 2278 – 4357

[2] Shampa Chowdhury, Souvik Tewari, Paromita Mukherjee, Anirban Pattanayak. A brief survey on restorative esteem of Indian blackberry (*Syzygium cumini* L.). Worldwide Diary of Nourishment Science and Nourishment. www.foodsciencejournal.com ISSN: 2455-4898 Gotten: 05-08-2022, Acknowledged: 21-08-2022, Distributed: 07-09-2022 Volume 7, Issue 3, 2022, Page No. 158-161.

[3] Muhammad Amjad Chisht, Muhammad Akram, Surendar Rangasamy, Francisco Garcia-Sierra, Md Al Hasibuzzaman, Fethi Ahmet Ozdemir, Gaweł Sołowski, Najmiatul Fitria, Marcos Altable, Mohamed M Hassan, Adonis Sfera. Administration of diabetes mellitus with restorative plants. Diary of clinical and Therapeutic Pictures. Gotten: May 14, 2024 Acknowledged: Jun 13, 2024 Distributed Online: Jun 20, 2024.

[4] Debjit Bhowmik, Harish Gopinath, B. Pragati Kumar, S. Duraivel, Aravind. G, K. P. Sampath Kumar. Conventional and Therapeutic Employments of Indian Dark Berry. Diary of Pharmacognosy and Phytochemistry. ISSN 2278-4136 ZDB-Number: 2668735-5 IC Diary No: 8192 Volume 1 Issue 5 Online Accessible at www.phytojournal.com

[5] Chinmay D. Deshmukh, Anurekha Jain. Diabetes Mellitus: A Audit. Universal diary of immaculate & Connected Bioscience. ISSN: 2320 – 7051 Int. J. Immaculate App. Biosci. 3 (3): 224-230 (2015).

[6] UAZMAN ALAM, OMAR ASGHAR, SHAZLI AZMI, RAYAZ A. MALIK. Common angles of diabetes mellitus. Handbook of Clinical Neurology, Vol. 126 (3rd arrangement) Diabetes and the Apprehensive Framework D.W. Zochodne and R.A. Malik, Editors © 2014 Elsevier B.V. All rights saved.

[7] Krushna P. Jadhav, Prof. Aishwarya D. Ghuge, Dr. Swati P. Deshmukh, Shrikrushna M. Khambalkar. JAMUN-A Anti-diabetic Home grown Medicate. Worldwide Diary of inventive Investigate contemplations (IJCRT). 023 IJCRT | Volume 11, Issue 10 October 2023 | ISSN: 2320-2882.

[8] Gazi Jahangeer Or maybe, Hamidudin, MD Naquibuddin, Mohd. Ikram and Roohi Zaman. Antidiabetic potential and related action of Jamun (*Syzygium cumini* Linn.) and its utilization in Unani pharmaceutical: An diagram. Worldwide Diary of Home grown Pharmaceutical 2019; 7(5): 07-11 E-ISSN: 2321-2187 P-ISSN: 2394-0514 IJHM 2019; 7(5): 07-11 Gotten: 04-07-2019 Acknowledged: 08-08-2019.

[9] Bipra Banerjee and Santa Datta De. Seeds of *Syzygium cumini* (Jamun): A Survey on its Wellbeing Advancing Angles. Diary of Pharmacognosy and Phytochemistry 2024; 13(3): 75-81. E-ISSN: 2278-4136 P-ISSN: 2349-8234

- www.phytojournal.com JPP 2024; 13(3): 75-81
Gotten: 13-02-2024 Acknowledged: 16-03-2024
- [10] A. Kumar, R. Ilavarasan, T. Jayachandran, M. Deecaraman, P. Aravindan, N. Padmanabhan and M. R. V.Krishan. Anti-diabetic action of *Syzygium cumini* and its disconnected compound against streptozotocin-induced diabetic rats. *Diary of Therapeutic Plants Investigate* Vol. 2(9), pp. 246-249, September, 2008 Accessible online at <http://www.academicjournals.org/JMPR> ISSN 1996-0875 © 2008 Scholarly Diaries.
- [11] Vikas Sharma, Arti Heer, Navneet Kour, Akash Sharma, Shashank K Singh. Karonda and Jamun seeds' in vitro anticancer viability. *Indian Diary of Conventional Information* Vol 18(3), July 2019, pp 573-578 .Gotten 09 May 2017; reexamined 05 Walk 2019.
- [12] Yamini Tak, Manpreet Kaur, Mool Chand Jain, Mahesh Kumar Samota, Nirmal Kumar Meena, Gurpreet Kaur, Rajendra Kumar, Daisy Sharma, José M. Lorenzo⁹, Ryszard Amarowicz. Jamun Seed: A Survey on Bioactive Constituents, Dietary Esteem and Wellbeing Benefits. *Polish Diary of nourishment and Nourishment science*. *Pol. J. Nourishment Nutr. Sci.*, 2022, Vol. 72, No. 3, pp. 211–228.
- [13] Vedika Anil Thakur and Sury Pratap Singh. Review on the helpful properties of jamun (*Syzygium cumini* L.) seed and their utilization in dairy item. *Diary of Investigate in Chemistry* 2023; 4(1): 17-25. E-ISSN: 2709-9423 P-ISSN: 2709-9415 JRC 2023; 4(1): 17-25 © 2023 JR www.chemistryjournal.net Gotten: 13-10-2022 Acknowledged: 16-11-2022
- [14] Muhammad Shahnawaz, Saghir Ahmed Sheik, Muhammad Iqbal Bhangar, and Ejaz Ahmed. Total phenolic compounds and antioxidant action of jamun natural product (*Eugenia jambolana*) products. *Pakistan society of nourishment science & technologists*. *PAK. J. Nourishment SCI.*, 20(1-4), 2010:31-41 ISSN: 2226-5899
- [15] Upasna Balyan & Biswajit Sarkar. Watery extraction energy of phenolic compounds from jamun (*Syzygium cumini* L.) *Worldwide Diary OF Nourishment PROPERTIES* 2017, VOL. 20, NO. 2, 372–389 <http://dx.doi.org/10.1080/10942912.2016.1163266>. Received 8 October 2015 Acknowledged 4 Walk 2016
- [16] Meenakshi Kumawat, Jyoti Damor, Jaya Kachchwaha, Ayush Kumar Garg, Chandan Singh. PHARMACOLOGICAL PROPERTIES AND Restorative POTENTIAL OF SYZYGIUM CUMINI (JAMUN): A REVIEW. *World Diary of Pharmaceutical Inquire about SJIF Affect Calculate* 7.523. Volume 7, Issue 03, 312-322. Article Gotten on 06 Dec. 2017 Changed on 27 Dec. 2017, Accepted on 18 Jan. 2018 DOI: 10.20959/wjpr20183-10877
- [17] <https://images.app.goo.gl/E8excHorW3xqaa4n7>. August 1, 2024
- [18] <https://images.app.goo.gl/1cc4JSBzn7sC3BrD7>. August 3, 2024
- [19] <https://images.app.goo.gl/c6CaL5AUL19U9GK7A>. August 3, 2024
- [20] <https://images.app.goo.gl/c6CaL5AUL19U9GK7A>. August 3, 2024
- [21] <https://images.app.goo.gl/56F63xSGFMGGc34D8>. August 3, 2024