# What Is the Nutritional Content of African Star Apple?

African star apples are rich in water, antioxidants, vitamins, minerals, and dietary fiber. 100 grams of fresh African star apple pulp contains:

- About 4 grams of protein
- About 5.5  grams of fat
- About 4.5 grams of fiber
- About 9 grams of carbohydrates
- About 120 calories
- About 700 milligrams of potassium
- About 400 milligrams of calcium
- About 215 milligrams of phosphorus
- About 8 milligrams of zinc
- About 93 milligrams of vitamin C
- About 340 micrograms of beta-carotene, which forms vitamin A
- About 2.5 milligrams of iron
- Apart from this, African star apples contain vitamins B1, B2, B3, B6, and E and antioxidants like flavonoids.

https://www.webmd.com/diet/benefits-of-african-star-apple

# What Are African Star Apple Health Benefits?

In Nigeria, African star apples are often used as a home remedy and herbal treatment. They are used in medicine because of their beneficial properties:

- **Antioxidant properties.** Antioxidants help detoxify your body. They hunt for toxic molecules called free radicals, which can cause oxidative damage to your cells. African star apples contain antioxidants that get rid of free radicals and protect your organs from damage.

- **Anti-inflammatory properties.** African star apple fruits are abundant in anti-inflammatory substances like alkaloids, flavonoids, and phenols. These reduce inflammation in your body and prevent long-term health conditions such as diabetes, cancer, and heart problems.

- **Antimicrobial properties.** Lab studies have shown that extracts from African star apple seeds have antibacterial and antifungal properties. However, more studies are required to determine dosage and effect on humans.

https://www.webmd.com/diet/benefits-of-african-star-apple

# What Are African Star Apple Health Benefits?

**1. Improves heart health.** African star apples are a rich source of natural antioxidants such as flavonoids and vitamin E, C, and A. They prevent oxidative damage of cells and promote heart health. Studies have also shown that the African star apple contains glycosides. They are antioxidants that help fight heart disease. The fruit also contains low levels of sodium and high levels of potassium, which makes it a healthy snack for people with high blood pressure.
It also has anti-inflammatory properties that can help prevent heart disease and stroke.

https://www.webmd.com/diet/benefits-of-african-star-apple

# What Are African Star Apple Health Benefits?

**2. Helps manage and control diabetes.** Evidence suggests that African star apple pulp can lower blood sugar levels and act as an effective dietary supplement to manage diabetes. The fruit contains high amounts of fiber, which lowers blood sugar. It also contains natural antioxidants that fight oxidative damage and prevent diabetes. African star apple also lowers the levels of enzymes such as alpha-amylase and alpha-glucosidase, which break down carbohydrates and increase blood sugar levels. This suggests that the fruit can be consumed to help manage diabetes.

https://www.webmd.com/diet/benefits-of-african-star-apple

# What Are African Star Apple Health Benefits?

**3. Prevents cancer.** A high-fiber and antioxidant-rich diet can prevent different types of cancer, such as colorectal cancer. Research shows that African star apples may play an important role in preventing the growth of cancerous cells. African star apples are rich in pectin, a type of fiber, and antioxidants such as beta-carotene and vitamin E. It also has anti-inflammatory properties, which can help prevent cancer growth.

https://www.webmd.com/diet/benefits-of-african-star-apple

# What Are African Star Apple Health Benefits?

**4. Lowers bad cholesterol levels.** High levels of bad cholesterol can increase your risk of developing blockage in your arteries. This can lead to heart problems and stroke. *Chrysophyllum albidum* or African star apple fruits contain compounds called saponins. They bind to bad cholesterol and prevent it from entering your bloodstream. African star apples also have high levels of pectin or fiber, which improves good cholesterol levels.
Research also shows that vitamin C in food can increase the levels of good cholesterol. Snacking on African star apples can increase your vitamin C levels and, in turn, improve cholesterol levels.

https://www.webmd.com/diet/benefits-of-african-star-apple

# What Are African Star Apple Health Benefits?

**5. Helps cure and prevent diarrhea.** Traditionally, African star apples are used to prevent diarrhea. They have high pectin and fiber content. Eating African star apples can treat diarrhea and improve your bowel movements.

https://www.webmd.com/diet/benefits-of-african-star-apple

# What Are African Star Apple Health Benefits?

**6. May improve memory and brain function.** A recent animal study showed that African star apples improved memory and brain function in mice. Substances known as lipopolysaccharides can affect memory and cognition by increasing oxidative damage, inflammatory molecules, and chemical activity in the brain. When mice were given a diet of *Chrysophyllum albidum* fruits, though, their memory and cognition improved. The antioxidant and anti-inflammatory properties of these fruits likely reverse the damage caused by lipopolysaccharides and restored brain function. However, human studies are required to confirm this medical benefit.

https://www.webmd.com/diet/benefits-of-african-star-apple

# What Are African Star Apple Health Benefits?

**7. Prevents obesity and aids in weight loss.** Doctors recommend high-fiber diets to prevent obesity and aid in weight loss. Fiber makes you stay full for longer and reduces your appetite, thus helping you lose weight. African star apples have low calories and high fiber content. They can help you control your weight and prevent obesity.

https://www.webmd.com/diet/benefits-of-african-star-apple

# What Are African Star Apple Health Benefits?

**8. Other health benefits.** *Chrysophyllum albidum* is a great source of micronutrients and minerals like calcium, phosphorus, and potassium. Your body uses these minerals to maintain electrolyte balance, transmit brain signals, and build strong bones and teeth. Zinc present in African star apples promotes the growth and maintenance of your body's cells. The fruit also provides copper and manganese, which help activate proteins and enzymes in your body.

https://www.webmd.com/diet/benefits-of-african-star-apple

# African Star Apple Contains!

1. Vitamin E, C, and A
2. Vitamins B1, B2, B3, B6
3. Anti-inflammatory compounds
4. Antioxidants
5. Alpha-amylase and alpha-glucosidase
6. Pectin
7. Beta-carotene
8. Saponins
9. Lipopolysaccharides
10. Zinc

https://www.webmd.com/diet/benefits-of-african-star-apple

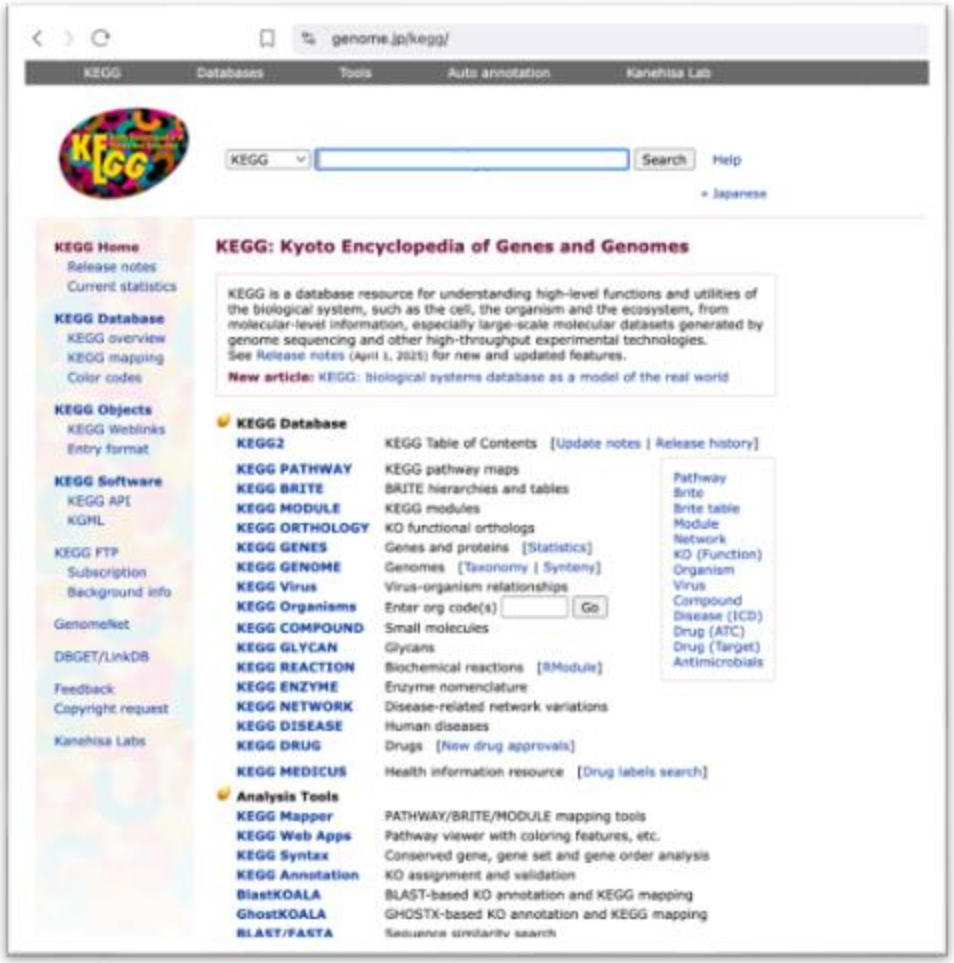
# Where to se arch for functional annotation?

Uniprot


KEGG


ChatGTP

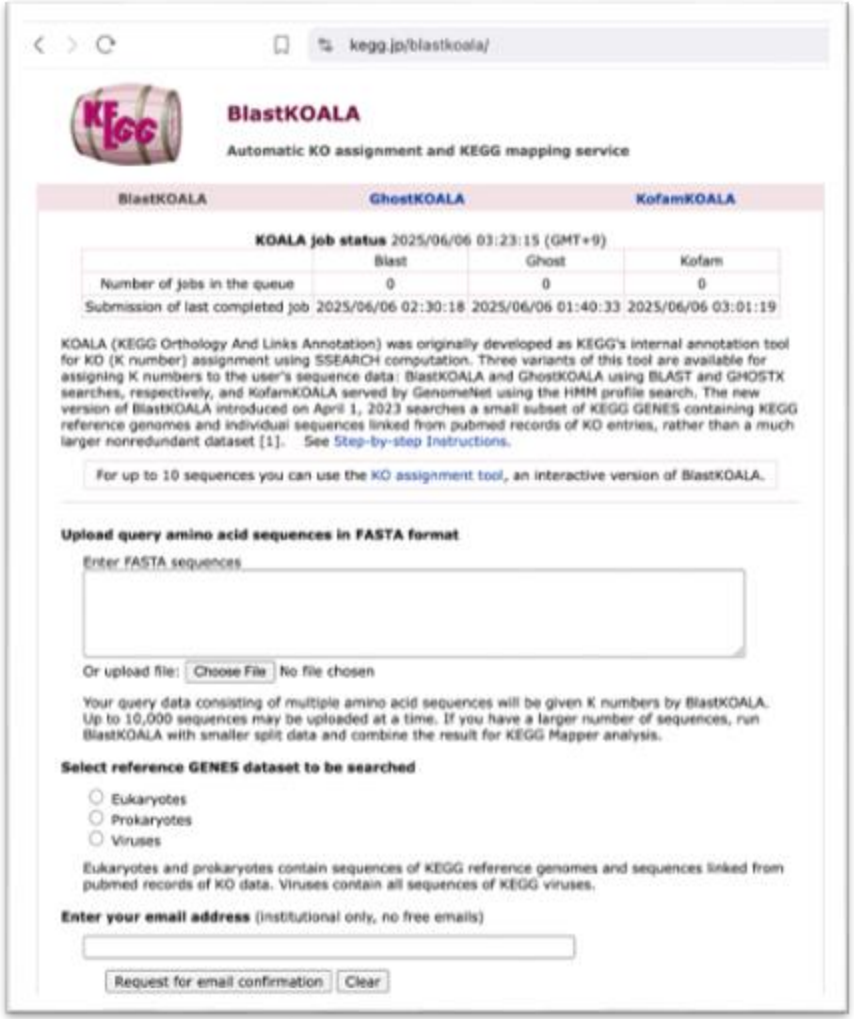
# Where to se arch for functional annotation?




# Where to se arch for functional annotation?

**Analysis Tools**

| | |
|---|---|
| **KEGG Mapper** | PATHWAY/BRITE/MODULE mapping tools |
| **KEGG Web Apps** | Pathway viewer with coloring features, etc. |
| **KEGG Syntax** | Conserved gene, gene set and gene order analysis |
| **KEGG Annotation** | KO assignment and validation |
| **BlastKOALA** | BLAST-based KO annotation and KEGG mapping |
| **GhostKOALA** | GHOSTX-based KO annotation and KEGG mapping |
| **BLAST/FASTA** | Sequence similarity search |
| **SIMCOMP** | Chemical structure similarity search |



# Strategies?

- Search for annotated gene/protein sequences in Uniprot and KEGG for more detailed functional annotations and possible pathways involved.
- Search for keywords in Uniprot and KEGG for genes or pathways connected to these keywords.
- Search for not annotated gene/protein sequences in Uniprot and KEGG for potential sequence similarities and potential functional annotations and pathways involved.
- Keyword search in PubMed