

# DETERMINATION OF SOME HEAVY METAL LEVELS IN SOFT DRINKS ON

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**What are the methods of heavy metal determination?** The content of HMs can be analyzed using techniques for instance inductively coupled plasma mass spectrometry (ICP-MS) and atomic absorption spectrometry (AAS); chemical form by atomic fluorescence spectrometry (AFS) and X-ray absorption spectroscopy (XAS), respectively; spatial distribution through X-ray fluorescence ...

**How are heavy metals in drinking water determined?** Water samples were analysed using Atomic Absorption Spectrophotometer (AAS). The AAS was used because it has advantage over colorimetry method due to its high sensitivity detection limit, degree of accuracy and reproducibility with the ease of sample preparation and handling.

**How do you test for co<sub>2</sub> in soft drinks?** The most effective way to test for CO<sub>2</sub> is to bubble the gas through “lime water”, a diluted solution of calcium hydroxide. When we bubble carbon dioxide through the solution, it forms a solid precipitate of calcium carbonate- chalk or limestone.

**Are there heavy metals in soft drinks?** Heavy metal analysis showed the presence of cadmium, lead and mercury. Cadmium was detectable only in bottled coke (0.149 mg/L), while mercury was present in 22 samples and lead detected in all the samples. Lead ranged from 0.17 to 3.39 mg/L with a mean of 0.8 while mercury ranged from 0.

**What is the most accurate way to test for heavy metals?** Tests for heavy metals can analyze blood, urine, hair, or fingernails. Of these, blood and urine testing are more frequently used. The optimal form of testing depends on the metals being

measured and whether the exposure is considered short-term (acute) or long-term (chronic).

**What are most commonly used instrument for heavy metal determination?** The most used are Atomic Absorption Spectroscopy (AAS), Flame Emission Spectroscopy (FES), UV/VIS Spectroscopy, Inductively Coupled Plasma Mass Spectrometry (ICP-MS), Inductively Coupled Plasma Optical Emission Spectrometry (ICP-OES), X-ray Fluorescence Spectrometry (XRF).

**What are the most common heavy metals in drinking water?** Heavy metals include: arsenic, antimony, cadmium, chromium, copper, lead, selenium and many more. Heavy metals can contaminate private wells through groundwater movement and surface water seepage and run-off.

**Does bottled water contain heavy metals?** Most plastic water bottles are made of PET (polyethylene terephthalate) plastic. At least 150 chemicals are known to leach from PET plastic beverage bottles into the liquid inside, including heavy metals like antimony and lead, and hormone-disruptors like BPA.

**How do I know if my water has heavy metals?** Heavy metals in drinking water can be lab tested using EPA Method 200.7 or EPA Method 200.8. EPA Method 200.7 involves inductively coupled plasma-atomic emission spectrometry while EPA Method 200.8 is more precise and utilizes inductively coupled plasma-mass spectrometry.

**Which soft drink has the most carbon dioxide?** Conclusion: Within two minutes, Sprite releases the most carbon dioxide because of its high amount of solubility of gas molecules in the liquid, but the other sodas are close behind with other varying results because of their lower solubility.

**How to measure carbonation levels in soda?** The most common measurement technique for determining CO<sub>2</sub> concentration in beverages is to measure the total pressure and temperature of a sample. This method, known as the P/T method, involves measuring the total pressure and temperature and then calculating the CO<sub>2</sub> concentration in the liquid.

**Do different sodas have different carbonation levels?** Different kinds of soda also have varying carbonation levels.

**What is the most unhealthy soft drink in the world?**

**Which soft drink is not harmful?** Fruit-flavoured fizzy drinks like lemonade and fizzy orange are slightly better choices than cola, but not ideal as your regular drink. The combination of sugar and acid can damage your teeth, and over time, excess calories from a high-sugar diet can lead to weight gain.

**Which juices have heavy metals?** Grape juice and juice blends contained the highest average levels of heavy metals.

**What is the common method for measuring heavy metals?** The most common methods for detecting and measuring heavy metals in soil samples include inductively coupled plasma mass spectrometry (ICP-MS) , X-Ray Fluorescent (XRF) spectrometry , flame atomic absorption spectrometry (F-AAS) , atomic absorption spectrometry (AAS), and inductively coupled plasma mass spectrometry ( ...

**What are the methods of metal analysis?** Chemical analysis of metals validates that the candidate material is appropriate for the intended end use. ICP analysis, OES analysis, gravimetric analysis, SEM-EDS analysis and XRF analysis are a few common qualitative and quantitative methods of determining material composition of metals.

**What are the four analytical techniques used to analyze heavy metals?** In this manual methods including the following four techniques are described: ICP-MS, graphite furnace atomic absorption spectroscopy (GF-AAS), flame-atomic absorption spectroscopy (F-AAS) and CV-AFS.

**What are the two methods used to determine the hardness of metal?** There are two principal methods of testing the hardness of a material – scratch testing and indentation testing.

## **Zodiac: Unraveling the Enigma with Robert Graysmith**

### **1. Who was Robert Graysmith?**

Robert Graysmith was a crime reporter for the San Francisco Chronicle who played a pivotal role in the Zodiac killer investigation. His relentless research and determination propelled him to become the foremost expert on the case. Through his books and articles, he brought the Zodiac's cryptic ciphers and taunting letters to the public's attention.

## **2. What was Graysmith's involvement in the Zodiac case?**

Graysmith began following the Zodiac killer's activities in 1969 when he deciphered one of the Zodiac's ciphers for the San Francisco Chronicle. Over the years, he meticulously compiled evidence and conducted interviews with suspects and witnesses. His theories and insights helped shape the public's understanding of the case.

## **3. What was Graysmith's controversial theory about the Zodiac?**

Graysmith developed a theory that a man named Arthur Leigh Allen was the Zodiac killer. He presented his evidence in the book "Zodiac" (1986) and later in "Zodiac Unmasked" (2002). Graysmith's theory was met with both support and skepticism, but it remains one of the most enduring theories about the Zodiac's identity.

## **4. How did Graysmith's work impact the Zodiac investigation?**

Graysmith's writings kept the Zodiac case alive in the public consciousness and encouraged law enforcement to continue their search for the killer. His books inspired several Hollywood films, including the 2007 film "Zodiac" directed by David Fincher. Graysmith's research and theories have also been instrumental in other unsolved crimes.

## **5. What is Graysmith's legacy?**

Robert Graysmith passed away in 2014, leaving behind a remarkable legacy as a dedicated crime reporter and an authority on the Zodiac case. His tireless pursuit of the killer inspired countless others to seek justice and closure in unsolved crimes. Graysmith's work continues to fascinate and intrigue true crime enthusiasts around the world, ensuring that the enigma of the Zodiac remains an enduring mystery.

## **Zambian Past Papers for Biology: Questions and Answers**

Zambian past papers for biology are valuable resources for students preparing for their examinations. By practicing with these papers, students can familiarize themselves with the format, difficulty level, and commonly tested topics. Here is a sample question and answer from a Zambian past paper for biology:

### **Question:**

State the differences between a liverwort and a moss.

### **Answer:**

#### **Liverworts**

- Non-vascular plants
- Thalloid or leafy
- No true roots, stems or leaves
- Rhizoids for anchorage
- Dorsal scales on ventral surface
- Photosynthetic gametophytes
- Dominant generation is the gametophyte

#### **Mosses**

- Non-vascular plants
- Leafy
- True roots, stems and leaves
- Rhizoids for anchorage
- Phylloids on dorsal surface
- Photosynthetic gametophytes
- Dominant generation is the sporophyte

The main differences between liverworts and mosses lie in their structure, the presence of scales, and the dominance of the gametophyte or sporophyte

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generation.

### **Other Common Questions from Zambian Past Papers**

- Describe the structure and function of the nephron.
- Explain the role of hormones in regulating blood sugar levels.
- Discuss the effects of environmental pollution on aquatic ecosystems.
- Analyze the importance of biodiversity in maintaining healthy ecosystems.
- Evaluate the ethical implications of genetic engineering.

### **Benefits of Using Past Papers**

- Improve understanding of concepts and topics
- Identify areas of weakness and strength
- Gain a sense of the exam format and time constraints
- Build confidence and reduce anxiety
- Practice answering questions in a structured manner

To access Zambian past papers for biology, visit the official website of the Examination Council of Zambia (ECZ) or other educational resources online.

**Apakah Ubi mengandung antioksidan?** Ubi jalar mengandung vitamin A, vitamin B, dan zat antioksidan. Jenis antioksidan yang terkandung dalam umbi ini yaitu beta karoten, asa, klorogenat ,antosianin. Selain itu didalam ubi jalar juga mengandung gizi yang utama yakni pati.

**Apakah Ubi mengandung fenol?** Ubi jalar ungu, selain sebagai salah satu sumber karbohidrat, vitamin, mineral dan serat pangan, juga berpotensi sebagai makanan fungsional karena mengandung senyawa antosianin dan fenol yang memiliki aktivitas antioksidan.

**Apakah ubi jalar ungu mengandung flavonoid?** Salah satu tanaman yang mengandung flavonoid adalah daun ubi jalar ungu (Sulastri et al.,2013).

**Berapa kandungan antosianin pada ubi jalar ungu?** Kadar antosianin produk olahan ubi jalar ungu muda berkisar antara 1,14 - 2,24 mg/100g, dan ubi jalar ungu

pekat berkisar antara 6,19 – 46,14 mg/100g.

### **Zat antioksidan Apa Saja?**

**Antioksidan berfungsi untuk apa?** Fungsi utama antioksidan adalah membantu tubuh melawan radikal bebas berlebihan yang berpotensi menyebabkan stres oksidatif.

**Apakah daun ubi jalar mengandung polifenol?** Hasil skrining fitokimia terhadap simplisia dan ekstra etanol menunjukkan bahwa daun ubi jalar mengandung polifenol, flavonoid, triterpenoid, kuinon, saponin, tannin, dan monoterpenoid, serta seskuiterpenoid.

**Apakah ubi jalar mengandung fosfor?** “Umbi umbian termasuk lobak, kentang, singkong, bengkoang dan ubi jalar memiliki kandungan nutrisi yang baik bagi tubuh. Beberapa di antaranya serat, karbohidrat, vitamin, protein dan fosfor.”

**Apakah ubi jalar mengandung pektin?** Selain karbohidrat sebagai kandungan utamanya, ubi jalar mengandung vitamin, mineral, fitokimia (antioksidan :  $\beta$ -karoten, Antosianin) dan serat (pektin, selulosa, hemiselulosa).

**Kandungan vitamin apa yang ada pada ubi ungu?** Ubi ungu juga diketahui rendah kalori dan mengandung beragam vitamin, seperti vitamin A, vitamin B, dan vitamin C. Selain itu, ubi ungu juga merupakan sumber beta karoten yang baik dan tinggi antioksidan.

**Apakah ubi ungu memicu asam urat?** Ubi ungu mengandung antosianin di dalamnya yang bermanfaat untuk menurunkan kadar asam urat.

**Ubi jalar ungu untuk obat apa?** Halodoc, Jakarta – Ubi ungu mengandung beta-karoten dan pigmen antosianin yang bertindak sebagai antioksidan. Mengonsumsi makanan satu ini dapat membantu mengurangi peradangan dan meningkatkan sistem kekebalan tubuh. Ubi ungu memiliki sekitar tiga kali lebih banyak antosianin daripada blueberry.

**Apakah ubi jalar mengandung antioksidan?** Berdasarkan hasil analisis antioksidan yang diperoleh, ubi jalar mengandung antioksidan yang dapat dimanfaatkan sebagai pewarnaan alami pada produk klepon.

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**Berapa indeks glikemik ubi jalar ungu?** Ubi jalar mempunyai nilai indeks glikemik (IG) rendah sampai medium kisaran 54-68 dibandingkan dengan makanan yang menjadi sumber karbohidrat yaitu roti tawar, beras dan kentang, namun memiliki nilai IG yang lebih tinggi dibanding ubi kayu (Mendosa, 2008).

**Apakah ubi jalar mengandung beta karoten?** Ubi jalar memiliki keistimewaan dalam hal kandungan gizi terletak pada kandungan  $\beta$ -karoten yang cukup tinggi dibanding dengan jenis tanaman pangan lainnya.

**Apakah singkong antioksidan?** 4. Antipenuaan. Kemudian, singkong mengandung vitamin C dan E yang merupakan antioksidan kuat.

**Makanan apa saja yang mengandung antioksidan tinggi?**

**Buah apa yang mengandung antioksidan paling tinggi?** Kadar antioksidan dalam blueberry bisa dibilang adalah yang tertinggi, di antara semua buah dan sayuran. Per 100 gramnya, blueberry mengandung 9,2 mmol antioksidan dengan skor ORAC mencapai 9.019.

**Apa antioksidan terbaik?** Astaxanthin adalah antioksidan yang paling kuat yang pernah ditemukan di alam sejauh ini. Astaxanthin berguna untuk menjaga kesehatan jantung dan mengurangi peradangan pada tubuh yang disebabkan oleh radikal bebas.

[zodiac robert graysmith, zambian past papers 4 biology, formulasi krim antioksidan ekstrak etanol daun ubi jalar](#)

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