The mining of metal resources is a complex and environmentally sensitive process that involves extensive exploration, extraction, processing, and disposal of waste materials. This process is crucial for the extraction of valuable metals such as copper, gold, and silver, but it also poses significant environmental and social challenges. In this study, we aim to understand the mineralogy, geochemical processes, and environmental impacts of metal mining and to develop sustainable mining practices.

Methods:

1. Mapping and geostatistical analysis of mineral deposits
2. Geochemical analysis of mine tailings and water samples
3. Environmental impact assessment of mining activities
4. Socioeconomic impact studies of mining regions

Results:

- Identification of new mineral deposits
- Characterization of mineralogy and geochemistry
- Assessment of environmental impact
- Development of sustainable mining practices

Conclusion:

The study highlights the importance of integrating environmental and social considerations into mining practices. By adopting sustainable mining techniques, we can minimize the environmental impact and ensure the long-term viability of mining operations. Further research is needed to explore innovative technologies and practices that can improve the efficiency and sustainability of metal mining.

Abstract:

This study investigates the mineralogy, geochemistry, and environmental impacts of metal mining. Through a comprehensive approach that includes mapping, geochemical analysis, and environmental impact assessments, we identify new mineral deposits and characterize their mineralogy and geochemistry. Our findings underscore the importance of sustainable mining practices and highlight the need for ongoing research to develop innovative technologies and strategies.
### RESULTS

Chemical constituents of milk were analyzed by using the method described in the literature. The milk samples were divided into three categories: cow, buffalo, and human milk. The results are presented in Table 1.

#### Table 1: Chemical constiuents of different types of milk

<table>
<thead>
<tr>
<th>Type of milk</th>
<th>Mean percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cow</td>
<td>3.65</td>
</tr>
<tr>
<td>Buffalo</td>
<td>3.59</td>
</tr>
<tr>
<td>Human</td>
<td>3.39</td>
</tr>
</tbody>
</table>

The data in Table 1 illustrate the nutritional content of each type of milk. The milk samples were analyzed for their fat, protein, and lactose content.

### DISCUSSION

From the above results, it is clear that all sources of milk contained pesticide residues. The AXL (G.J.T) method was used for the extraction of the residues. The results showed that the residues were detected in all the tested samples. The residues were detected in both the cow and buffalo milk samples. The residues were also detected in the human milk samples at a lower level.

#### Table 2: Residues of pesticides in milk

<table>
<thead>
<tr>
<th>Residues</th>
<th>ppb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aldrin</td>
<td>0.001</td>
</tr>
<tr>
<td>Chlordane</td>
<td>0.002</td>
</tr>
<tr>
<td>Dieldrin</td>
<td>0.006</td>
</tr>
</tbody>
</table>

The results were compared with the maximum residue level (MRL) as specified by the Codex Committee on Pesticide Residues (CCPR). The results showed that all the residues were below the MRL. The residues were detected at exceptionally high levels in all the tested samples.

#### Table 3: Percentages of estimated chlorinated hydrocarbon residues in milk samples

<table>
<thead>
<tr>
<th>Type of milk</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cow</td>
<td>4.56</td>
</tr>
<tr>
<td>Buffalo</td>
<td>4.89</td>
</tr>
<tr>
<td>Human</td>
<td>4.25</td>
</tr>
</tbody>
</table>

The data in Table 3 show that the residues were detected at higher levels in the buffalo milk samples compared to the cow and human milk samples. This may be due to the higher consumption of pesticides in the buffalo farming industry.

### References

residues in dairy milk as compiled by GEMS/food programme reveals from the data submitted by reporting countries, that in general, milk contains the highest residue levels compared to any other food group. However, these residues are generally below MRL’s with a few exceptions and are slowly declining in most developed countries such as USA, Canada and Netherlands as well as some developing countries. There is no evidence of changes in these levels with time as the general trend is maintained except for Germany, Japan and some developing countries, where the level is increasing at a high rate (GEMS, 1991).

The organochlorine insecticides detected in this study are in accordance with previous studies conducted in Egypt in general for most pesticides. However, residues for some pesticides that were not used extensively in Egypt (i.e., heptachlor, chlordane) at any time, were detected at an exceptionally high level in all sources of milk tested. This could only be explained by the contamination of animal feeds and concentrates used. As the relation between the levels of chlorinated hydrocarbons in feed and that in milk is linear. However at lower levels in feed, the level in milk could be as much as double or more that in feed, Wett et al. 1966 and Matsuda 1976. These feeds and concentrates are being imported from countries that used or may be are still using these pesticides.

References


