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| Book Name: | [**Medical Science: Recent Advances and Applications**](https://bookstore.bookpi.org/product/medical-science-recent-advances-and-applications-vol-1/) |
| Manuscript Number: | **Ms\_BPR\_5724** |
| Title of the Manuscript: | **Histotechnology of Mineralized Tissues: Principles and Practical Approaches for Clinical and Research Applications** |
| Type of the Article | **Book Chapter** |

**Special note:**

**A research paper already published in a journal can be published as a Book Chapter in an expanded form with proper copyright approval.**

**Source Article:**

**This chapter is an extended version of the article published by the same author(s) in the following journal.**

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| PART 1: Comments | | |
|  | Reviewer’s comment **Artificial Intelligence (AI) generated or assisted review comments are strictly prohibited during peer review.** | Author’s Feedback *(Please correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)* |
| **Please write a few sentences regarding the importance of this manuscript for the scientific community. A minimum of 3-4 sentences may be required for this part.** | Decalcification is a critical step in the histopathological assessment of mineralized tissues such as bone and teeth. The selection of an appropriate decalcifying agent significantly influences the quality of microscopic evaluation, preservation of tissue architecture, and the reliability of downstream applications, including immunohistochemistry and molecular diagnostics.  Strong acids, such as nitric acid, offer the advantage of rapid decalcification and are often employed in time-sensitive clinical contexts. However, their use may compromise cellular morphology and staining quality. In contrast, weaker acids like formic acid provide a more balanced approach, offering acceptable decalcification rates while better preserving histological detail. Chelating agents such as EDTA are widely regarded as the gold standard for applications requiring high-fidelity preservation of nucleic acids and antigenicity, albeit at the cost of significantly longer processing times.  Ultimately, the choice of decalcifying agent should be guided by the specific diagnostic or research objectives, processing timelines, and the downstream analytical techniques to be employed. Protocol standardization, along with careful control of key variables such as pH and temperature, and precise determination of decalcification endpoints, are essential to ensure reproducibility and optimal outcomes.  As histopathology increasingly incorporates advanced molecular methodologies, the emphasis on using tissue-friendly decalcification protocols becomes even more critical. Adopting a tailored and evidence-based approach to decalcification will support both diagnostic accuracy and the expanding role of molecular pathology. |  |
| **Is the title of the article suitable?**  **(If not please suggest an alternative title)** | **YES** |  |
| Is the abstract of the article comprehensive? Do you suggest the addition (or deletion) of some points in this section? Please write your suggestions here. | This study underscores the critical role of selecting appropriate decalcification methods in the histopathological and molecular evaluation of mineralized tissues. A thorough understanding of the chemistry, efficacy, and biological implications of decalcifying agents is essential for guiding pathologists and researchers in making informed, application-specific decisions that preserve both diagnostic accuracy and scientific integrity. Bone, distinct among body tissues, possesses the unique capacity for self-repair and structural adaptation in response to mechanical stimuli. Its complex biochemical composition and micromorphology also enable remarkable long-term preservation, even under varied burial conditions. Bone remodeling, governed by the basic multicellular unit (BMU), involves tightly regulated interactions between osteoclasts and osteoblasts, culminating in mineralization through the deposition of organic matrix and hydroxyapatite nucleation. The fundamental mechanisms underlying calcium removal—rapid ionic dissolution by acids versus the more controlled chelation by agents such as EDTA—highlight the trade-offs between speed and preservation. This study reinforces the need for context-driven decalcification strategies to support evolving histological and molecular diagnostic demands. |  |
| **Is the manuscript scientifically, correct? Please write here.** | **YES** |  |
| **Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.**  **-** | **Add some recent reference in this.** |  |
| Is the language/English quality of the article suitable for scholarly communications? | YES |  |
| Optional/General comments |  |  |

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| **PART 2:** | | |
|  | Reviewer’s comment | Author’s comment *(if agreed with the reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)* |
| **Are there ethical issues in this manuscript?** | *(If yes, Kindly please write down the ethical issues here in detail)* |  |

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