CHAPTER V. CONCLUSION

5.1 Conclusion

Based on the research conducted, it can be conclude that:

1. The analysis of brown algae extract (*Sargassum crassifolium*) identified 21 bioactive compounds, with 15 of them predicted to be potential anti-osteoporosis agents. Seven of these compounds showed moderate to high predicted activity (Pa) values, while the remaining eight were categorized as low.
2. The treatment of brown algae extract (*Sargassum crassifolium*) at 350 and 450 mg/kg BW doses significantly increased cortical bone thickness. The 450 mg/kg BW dose also significantly increased the osteoblast count by an average of 32 cells, to a total of 46 cells. This count was close to that of the normal group (54 cells) and substantially higher than the osteoporosis group (14 cells). However, it did not significantly affect the bone marrow cavity diameter.
3. The treatment of brown algae extract (*Sargassum crassifolium*) showed potential in improving the chondroid matrix, as indicated by a significant increase in the percentage of chondroid matrix area in the osteoporosis group treated with 350 and 450 mg/kg BW extract compared to the untreated osteoporosis group.
4. The treatment of brown algae extract (*Sargassum crassifolium*) did not show a significant effect on the body weight of rats.

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5.2 Suggestion

Based on the results obtained, it is recommended that future research extend the duration of brown algae extract (*Sargassum crassifolium*) administration, particularly to evaluate its effects on cortical bone thickness more comprehensively. Conduct toxicity tests on extract doses and consider adding bone biomarker parameters. Additionally, the quality of the histology protocol, particularly in bone sectioning, should be improved to minimize artifacts.

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