



**2ND WORLD CONGRESS ON INTEGRATION
AND ISLAMICISATION: FOCUS ON
MEDICAL AND HEALTH CARE SCIENCES**

المؤتمر العالمي الثاني : أسلمة العلوم والتكامل المعرفي وتطبيقاتها
في علوم الطب والرعاية الصحية



(2WCII-2016)

Identifying the Potential of *Qur'anic* Recitation on the Proliferation of Chondrocytes Derived from Rabbit Articular Cartilage: *Work in Progress*

Rosyafirah Hashim¹

Munirah Sha'ban¹, Sarah Rahmat², Zainul Ibrahim Zainuddin^{3*}

¹Department of Biomedical Science, Kulliyah of Allied Health Sciences, International Islamic University Malaysia, Jalan Sultan Ahmad Shah, Bandar Indera Mahkota, 25200 Kuantan, Pahang Darul Makmur, Malaysia
Rosyafirah Hashim | rosyafirah@gmail.com
Munirah Sha'ban | munirahshaban@iium.edu.my

²Department of Audiology and Speech-Language Pathology, Kulliyah of Allied Health Sciences, International Islamic University Malaysia, Jalan Sultan Ahmad Shah, Bandar Indera Mahkota, 25200 Kuantan, Pahang Darul Makmur, Malaysia
Sarah Rahmat | sarahrahmat@iium.edu.my

³Department of Diagnostic Imaging and Radiotherapy, Kulliyah of Allied Health Sciences, International Islamic University Malaysia, Jalan Sultan Ahmad Shah, Bandar Indera Mahkota, 25200 Kuantan, Pahang Darul Makmur, Malaysia

*Zainul Ibrahim Zainuddin | zainul@iium.edu.my



OUTLINE

Introduction

Objectives

Materials & Methods

Results & Discussions

Conclusion

Future Work

Acknowledgement

References



INTRODUCTION

- In *Islam*, Qur'anic recitation is a method for treatment since Prophet Muhammad (ﷺ).
- Known to have therapeutic effects (Norsiah, et al., 2014).
- Qur'anic verse on Healing.

قُلْ هُوَ لِلَّذِينَ آمَنُوا هُدًى وَشِفَاءً

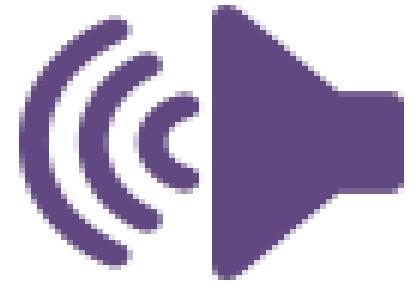
- “Say: It is a guide and a **healing** to those who believe;..”
Al-Fussilat (41:44)

وَنُنَزِّلُ مِنَ الْقُرْآنِ مَا هُوَ شِفَاءٌ وَرَحْمَةٌ لِّلْمُؤْمِنِينَ ۖ وَلَا يَزِيدُ الظَّالِمِينَ إِلَّا خَسَارًا

- “And We sent down in the Qur'an such things that have **healing** and mercy for the believers.” *Al-Isra* (17:82)

(translation by Ibnu Kathir, Abdullah Yusof Ali & Mamaduke Picktall)

Qur'anic verses treatment on cell cultures ??



INTRODUCTION

Articular Cartilage



Damage & Degeneration

- White tissue
- Covers the joints
- Made up from cell known as CHONDROCYTES
- Metabolically active
- Lack with blood supply
- Limited ability to repair itself
- Minor injury

INTRODUCTION

**Articular
Cartilage**



**Damage &
Degeneration**



**Holy
Qur'an**



OBJECTIVE

This study aims to identify the potential of *Qur'anic* recitation, particularly *Surah Al-Fatihah* on the proliferation of chondrocytes derived from the rabbit articular cartilage.



MATERIALS & METHOD

1. Sample Collection

- Ethical approval IIUM/IACUCAPPROVAL/2015/(5) (24)
- Obtained & transported the samples back to laboratory

2. Chondrocytes Isolation

- Sample Processing
- Enzymatic digestion

3. Chondrocytes Culture

- Initial seeding concentration is 50,000 cells/cm²
- Maintained in 37°C humidified incubator at 5% CO₂ atmosphere

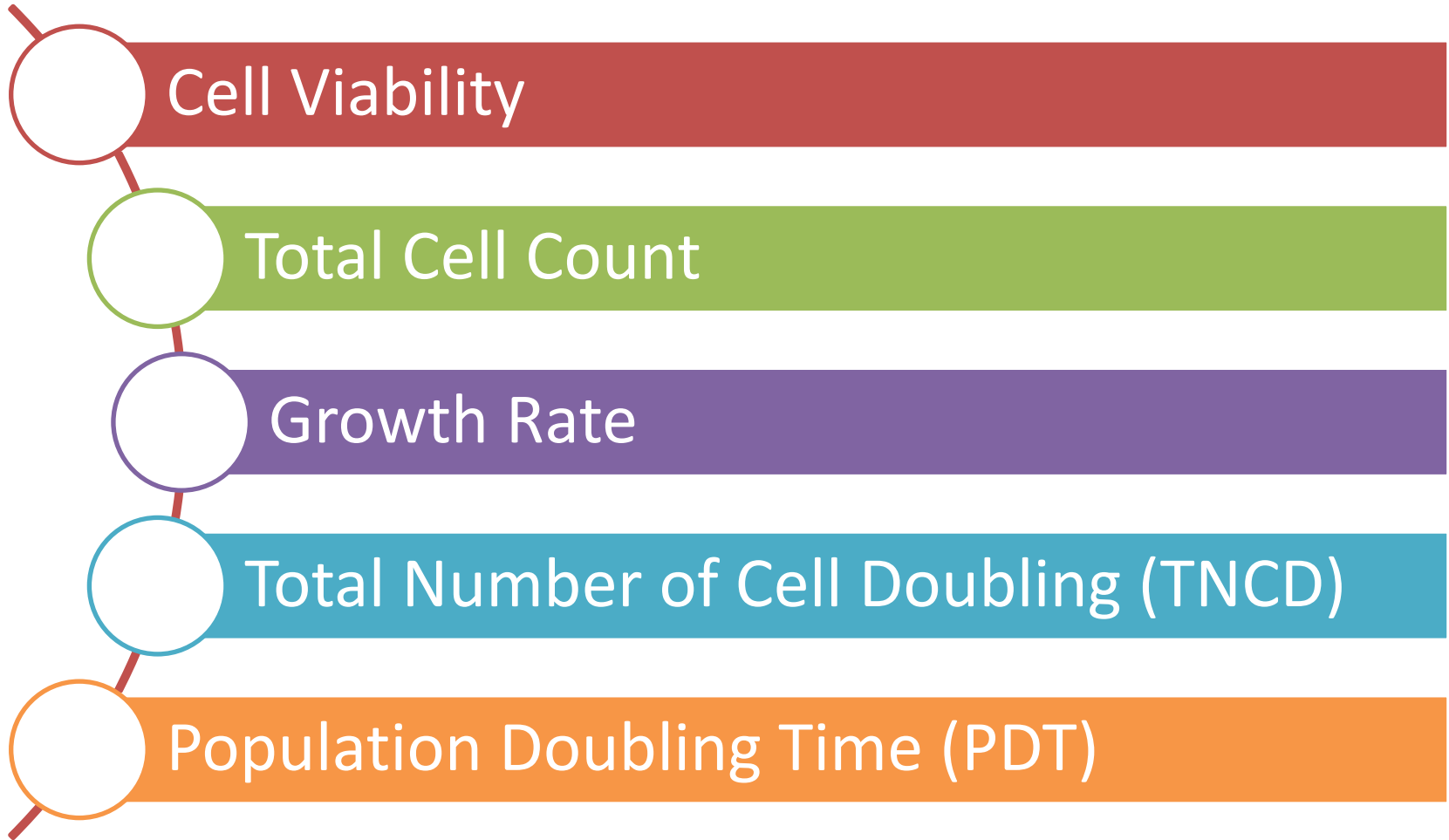
4. Chondrocytes Treatment

- Divided into 3 groups
- Exposed the cell cultures

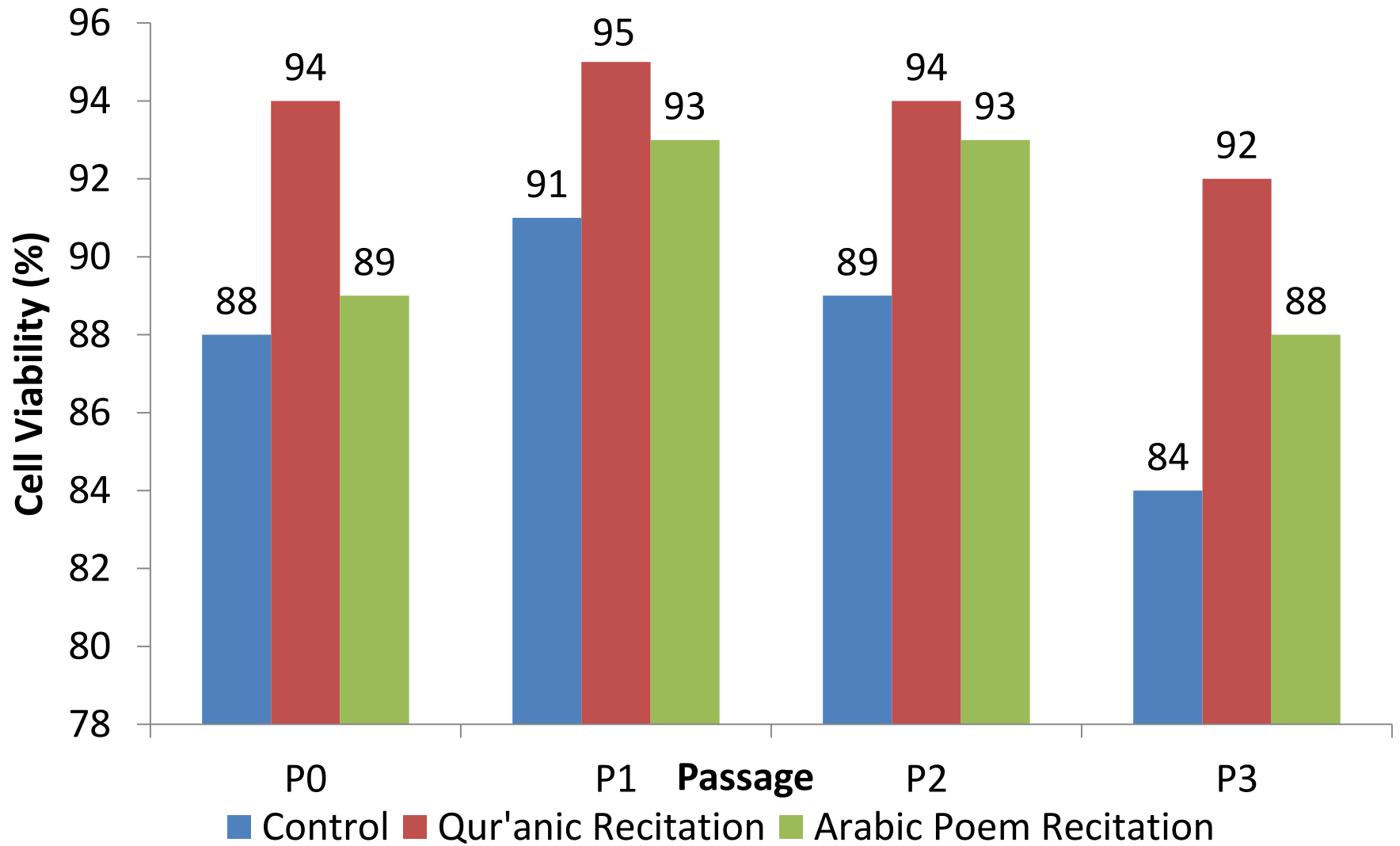
5. Cell Count and Viability

Cells reached the 80% - 90% confluence, growth kinetics analysis was performed

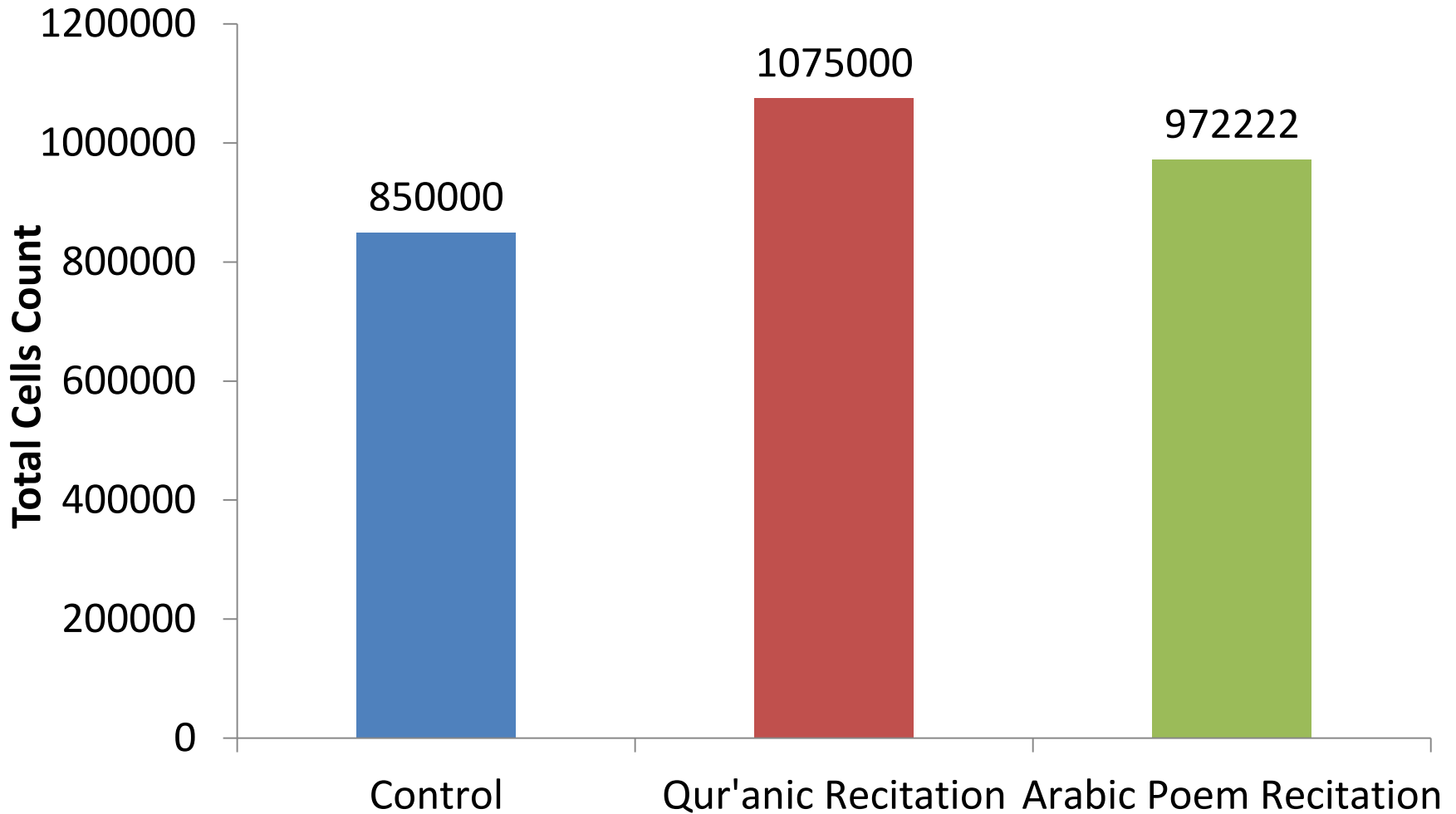
RESULTS & DISCUSSIONS



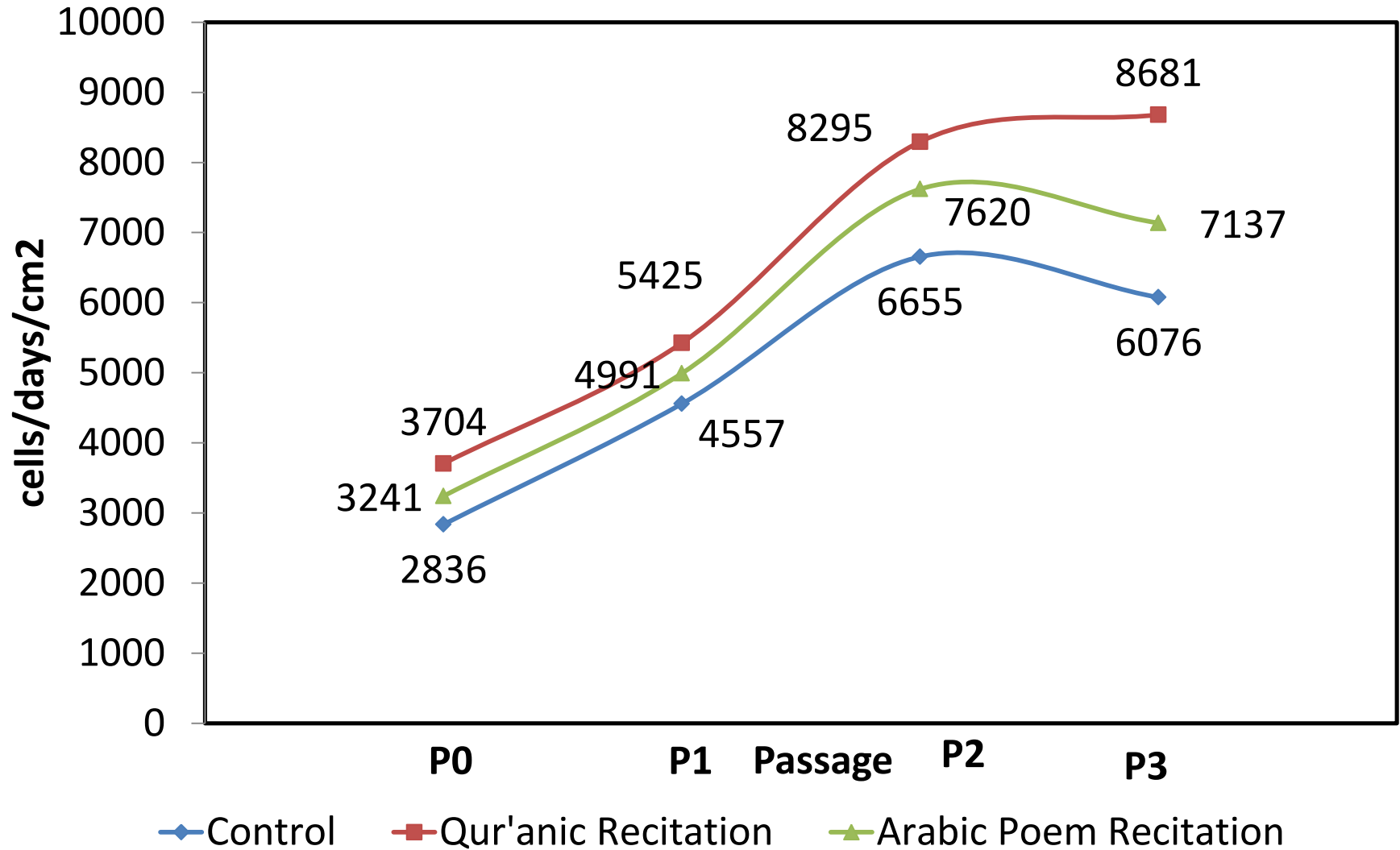
1. Cell Viability



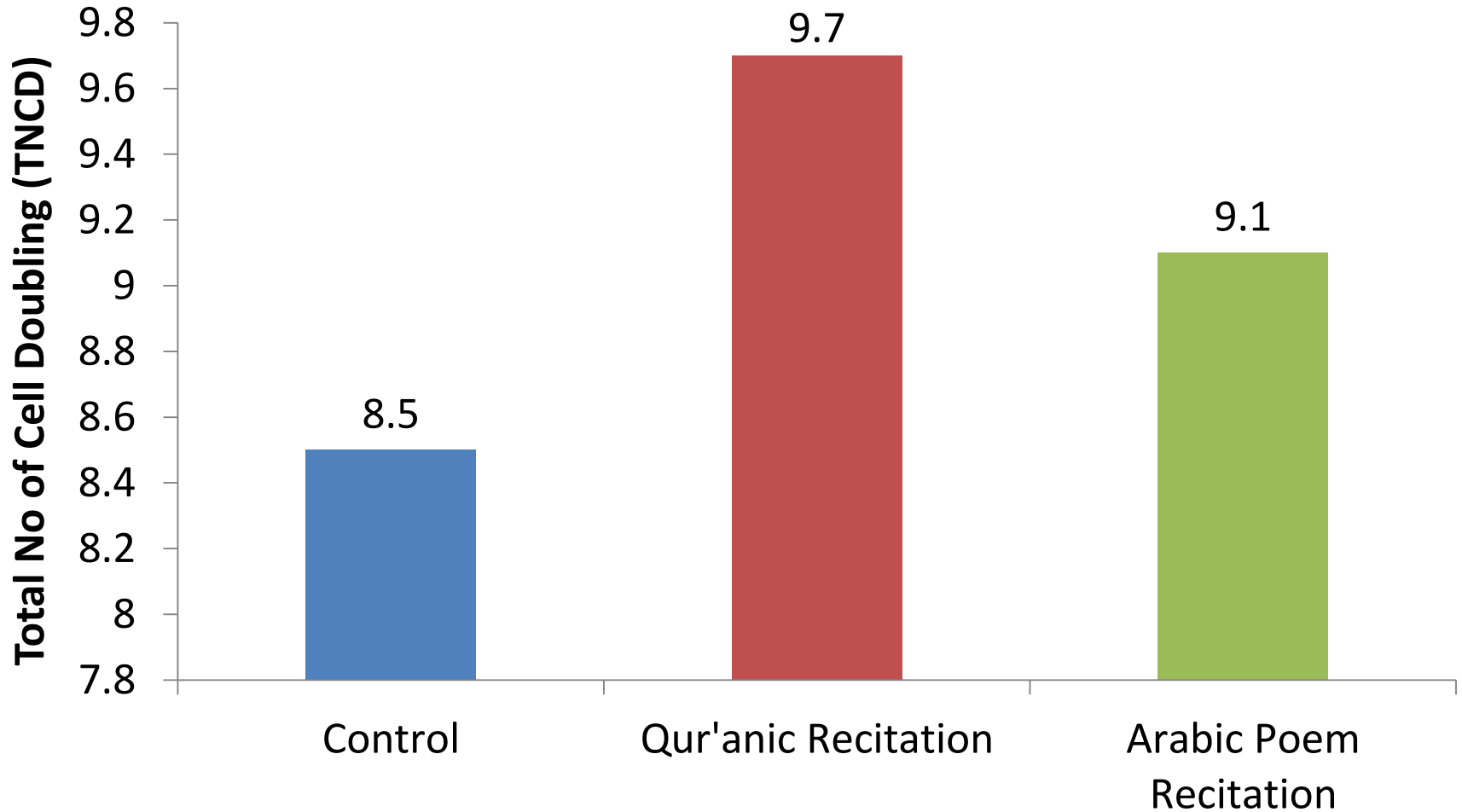
2. Total Cell Count



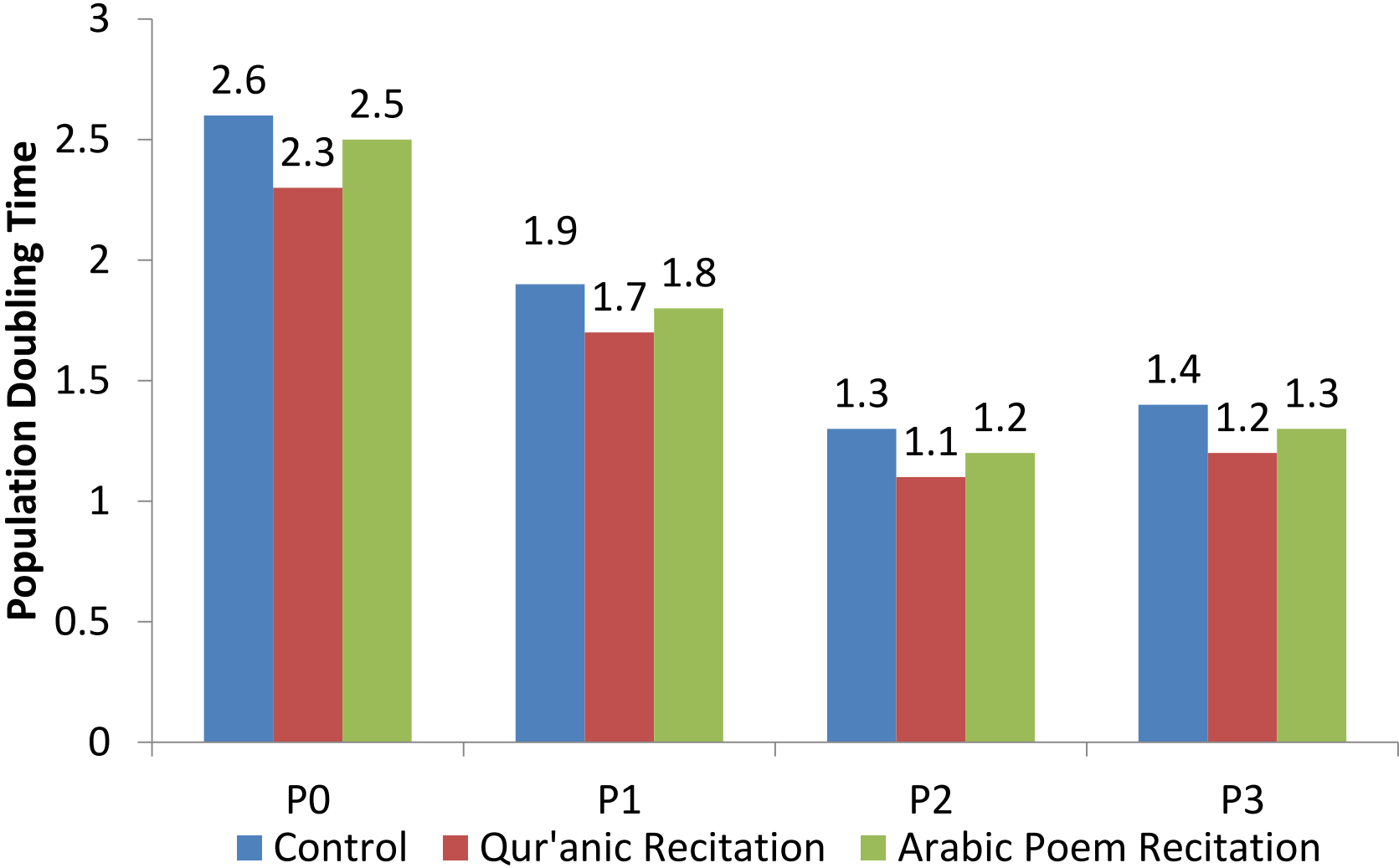
3. Growth Rate



4. Total Number of Cell Doubling (TNCD)



5. Population Doubling Time (PDT)



CONCLUSION

- This present study demonstrates that the chondrocytes cells exposed to the *Qur'anic* recitation shows a positive effect as proliferation of the cells was found to be increased when compared to the Arabic poem recitation and control groups.
- The chondrocytes culture results optimized in this preliminary work could pave the way for possible applications in treating injuries to articular cartilage and also be a potential approach for cartilage regeneration in tissue engineering.



FUTURE WORK

1. Experiment should be conducted in larger scale.
2. Studies relating to wound healing assay can be conducted to observe the proliferation from photomicrograph aspect.
3. Gene expression analysis using chondrogenic (cartilaginous) markers shall be proposed to see whether or not *Qur'anic* recitation is able to sustain cells (original) phenotype in monolayer culture.
4. Future work should also be directed to replicate this study on diseased cells.
5. A new variable, such as Western poem recitation shall be introduced.

Acknowledgements

The authors thanked the Kulliyah of Allied Health Sciences, International Islamic University Malaysia, Kuantan Campus and Ministry of Education for their support and for providing MyRA Incentive Research Grant Scheme (MIRGS13-01-002-0003).

REFERENCES

- Ruiz, E. L., Peran, M., Molinos, J. C., Jimenez, G., Picon, M., Bustamante, M., Arrebola, F., Lamas, M. C. H., Martinez, A. D. D., Montanez, E., and Marchal, J. A. (2013). Chondrocytes extract from patients with osteoarthritis induces chondrogenesis in infrapatellar fat pad-derived stem cells. *Osteoarthritis and Cartilage*, 21, 246-258.
- Lozito, T. P., Alexander, P. G., Lin, H., Gottardi, R., Cheng, A. W. M., and Tuan, R. S. (2013). Three-dimensional osteochondral micro tissue to model pathogenesis of osteoarthritis. *Stem Cell Research & Therapy*, 4, 1-6.
- Heidari, M., Tahmasebi, M., Etemad, S., Salehkhoulou, S., Vala, H. H., and Akhondi, M. M. (2011). In vitro human chondrocytes culture; a modified protocol. *Middle-East Journal of Scientific Research*, 9, 102-109.
- Tew, S. R., Murdoch, A. D., Rauchenberg, R. P., and Hardingham, T. E. (2008). Cellular methods in cartilage research: primary human chondrocytes in culture and chondrogenesis in human bone marrow stem cells. *Elsevier, Methods* 45, pp 2-9.
- Fauzan, N., Shahidan, S. N., Amran, N. H., and Syamimi, N. A. (2014). The therapeutic effects of listening to Quranic verse and rhythmic Zikr. *University of Malaysia Sarawak*.
- Kamal, N. F., Mahmood, N. H., and Zakaria, N. A. (2013). Modeling brain activities during reading working memory task: Comparison between reciting Quran and reading book. *Procedia Social and Behavioral Sciences*, 97, 83-89.
- Erkkila, J., Punkanen, M., Fachner, J., Ruona, E. A., Pontio, I., Tervaniemi, M., Vanhala, M., and Gold, C. (2011). Individual music therapy for depression: randomized controlled trial. *The British Journal of Psychiatry*, 199, 132-139.
- Arshad, N. W., Sukri, S. M., Muhammad, L. N., Ahmad, H., Hamid, R., Naim, F., and Naharuddin, N. Z. A. (2013). Makhraj recognition for Al-Quran recitation using MFCC. *International Journal of Intelligent Processing*, 4(2), 45-53.
- Retrieved from <http://watchislamicvideo.com/the-poem-that-made-imam-ahmad-cry-poetry-the-daily-reminder/>
- Lestard, N. D. R., Valente, R. C., Lopes, A. G., and Capella, M. A. M. (2013). Direct effects of music in non-auditory cells in culture. *Noise & Health*, 15, 307-314.

>90% Confluence

0 Hour

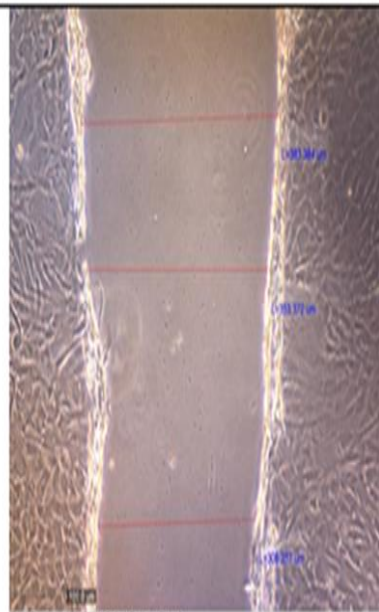
24 Hours

48 Hours

QR



Rabbit Chondrocytes P3 40x 501 Quanta Reactions 100% Confluence



Rabbit Chondrocytes P3 40x 501 Quanta Reactions (0 Hour)



Rabbit Chondrocytes P3 40x 501 Quanta Reactions (24 Hour)

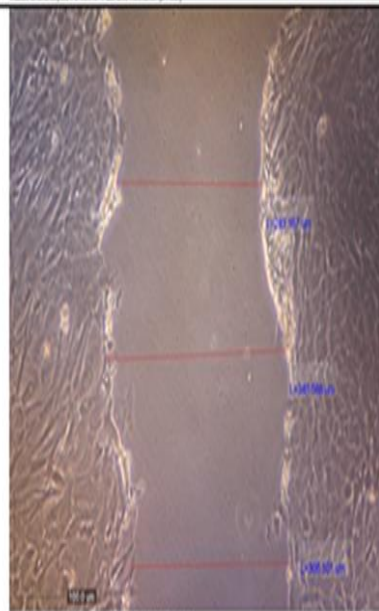


Rabbit Chondrocytes P3 40x 501 Quanta Reactions (48 Hour)

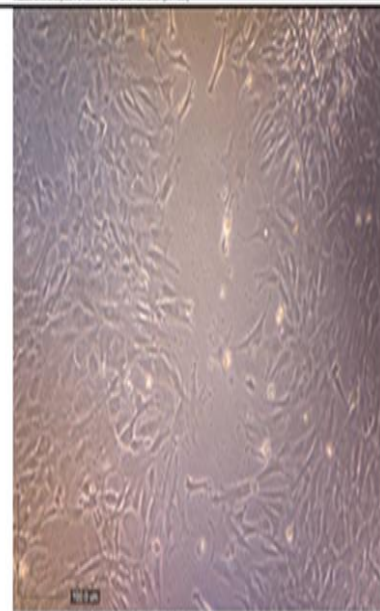
APR



Rabbit Chondrocytes P3 40x 501 Aralis Peain Reactions 100% Confluence



Rabbit Chondrocytes P3 40x 501 Aralis Peain Reactions (0 Hour)



Rabbit Chondrocytes P3 40x 501 Aralis Peain Reactions (24 Hour)



Rabbit Chondrocytes P3 40x 501 Aralis Peain Reactions (48 Hour)