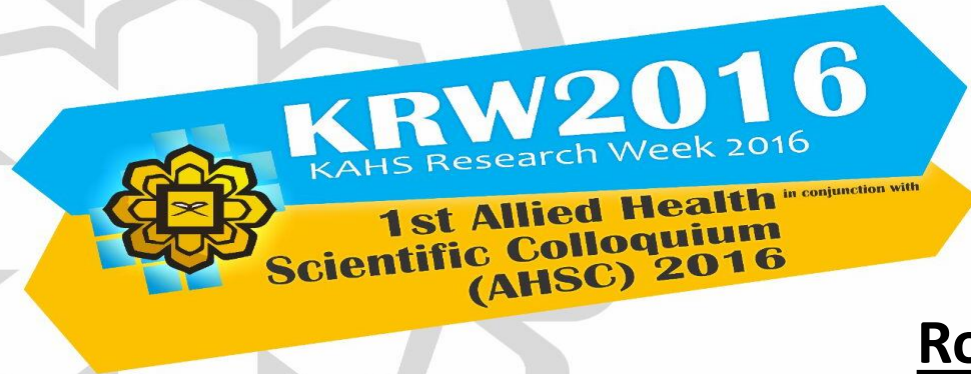


# Establishment of Growth Kinetics Profile and Measurement of Sulphated Glycosaminoglycan (sGAG) Production in Monolayer Cultured Chondrocytes Following Qur'anic Recitation Exposure



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# OUTLINE

Introduction

Objectives

Materials & Methods

Results & Discussions

Conclusion

Future Work

Acknowledgement

References

# INTRODUCTION

- Qur'anic recitation is a method for treatment since Prophet Muhammad (ﷺ)
- 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)*

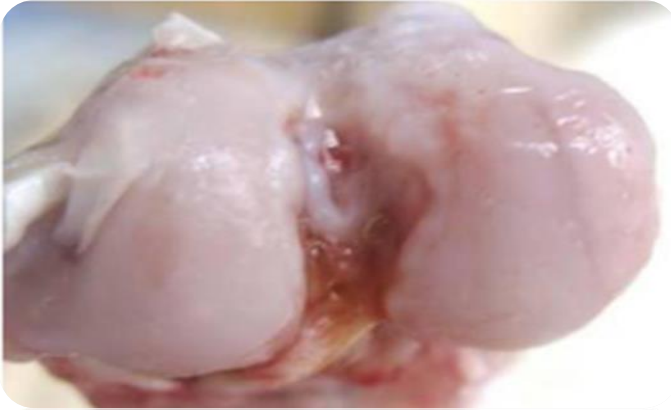
وَنُنَزِّلُ مِنَ الْقُرْآنِ مَا هُوَ شِفَاءٌ وَرَحْمَةٌ لِّلْمُؤْمِنِينَ ۖ وَلَا يَزِيدُ الظَّالِمِينَ إِلَّا خَسَارًا

- “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)

# INTRODUCTION

## Articular Cartilage

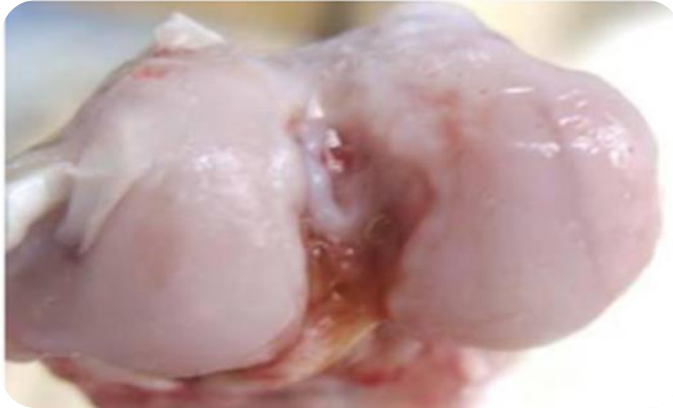


## Damage & Degeneration

- 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



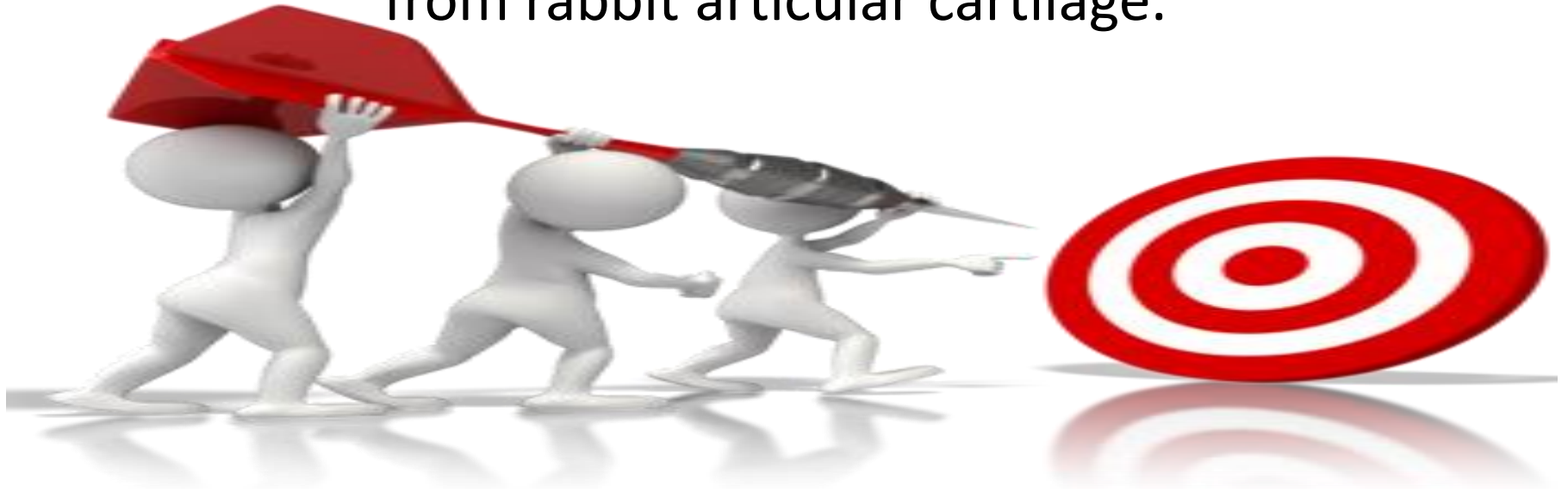
Holy  
Qur'an



Damage &  
Degeneration

# OBJECTIVE

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



# MATERIALS & METHOD

## 1. Sample Collection



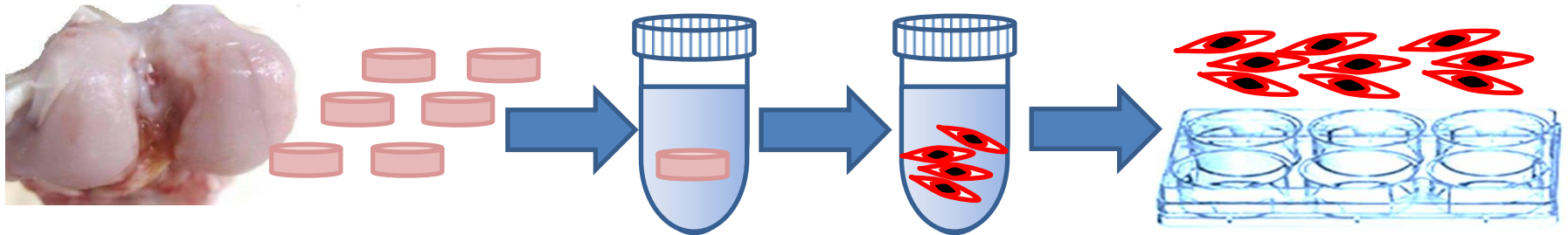
## 2. Chondrocytes Isolation



## 3. Chondrocytes Culture

Rabbit articular cartilage tissue samples were obtained from a commercially available source

Enzymatic digestion method was used to isolate "chondrocytes" from the cartilage tissue



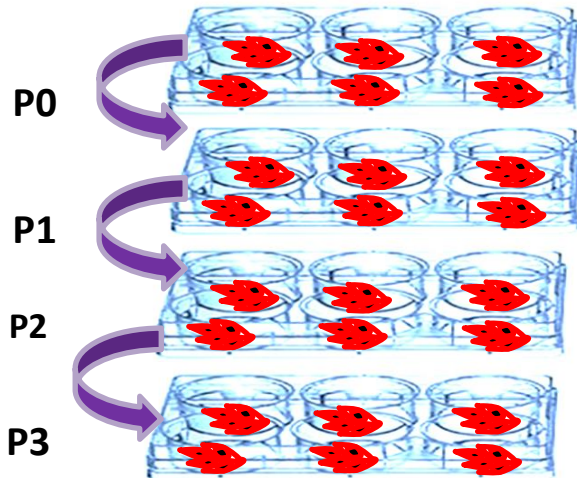
The isolated chondrocytes were counted and prepared for expansion in monolayer culture. Culture wells were filled up with growth media and maintained in a CO<sub>2</sub> incubator.

# MATERIALS & METHOD

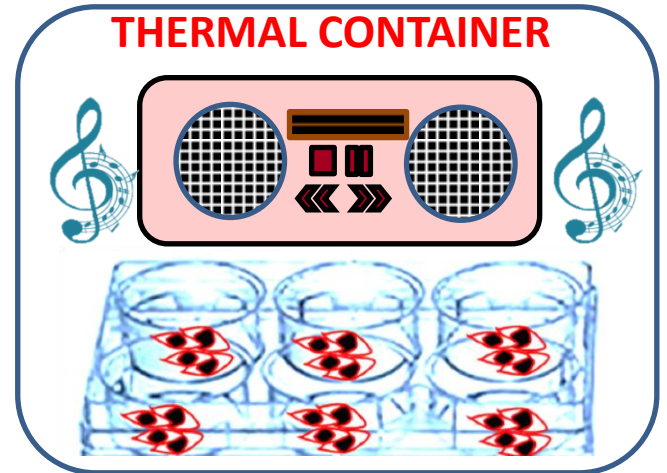
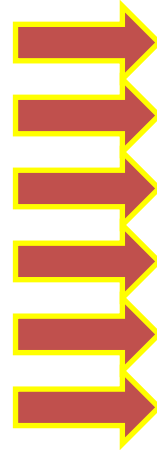
## 4. Chondrocytes Treatment



## 5. Analysis Performed

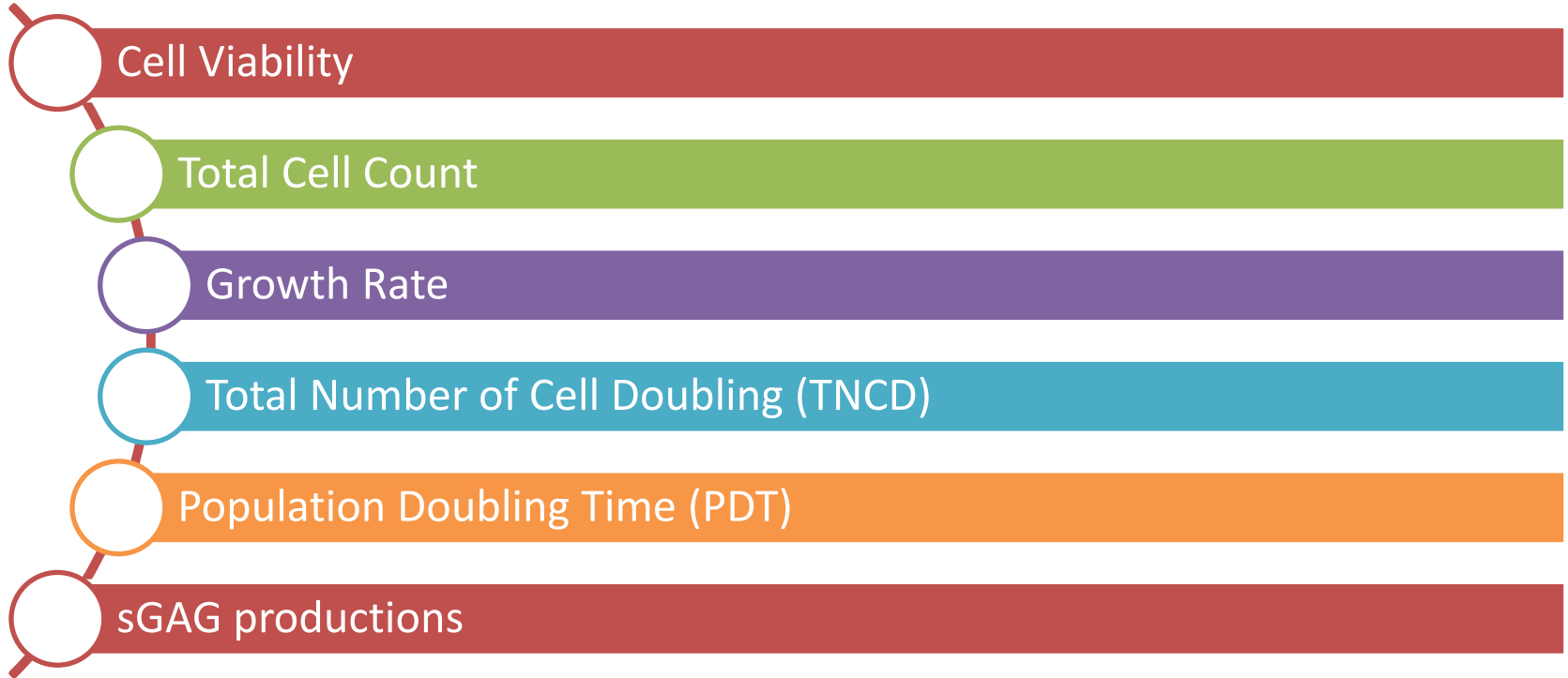


The cells at different passages were exposed inside:-

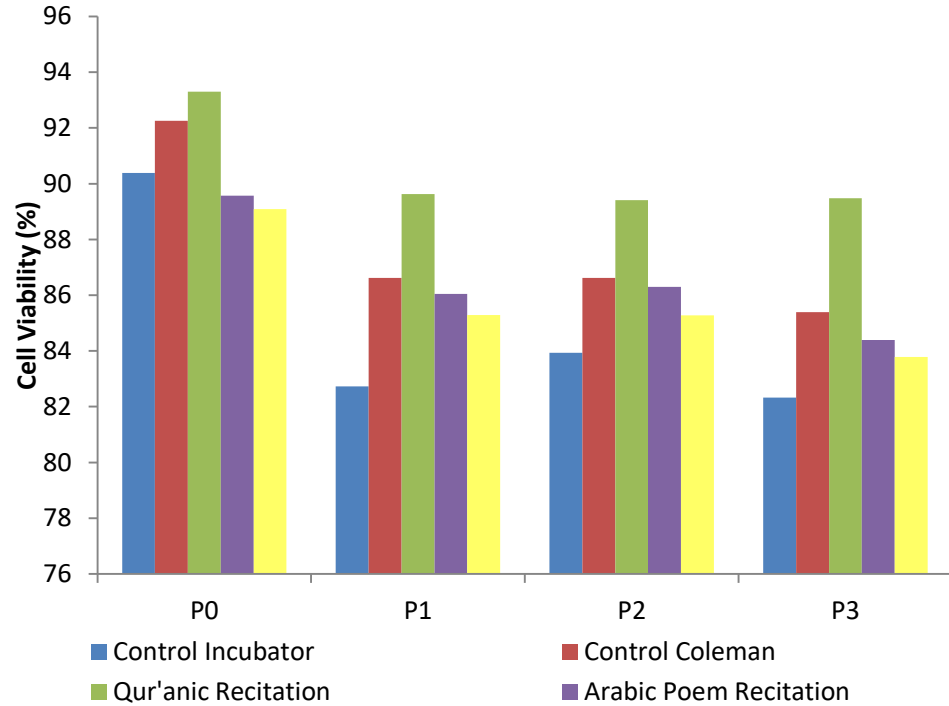




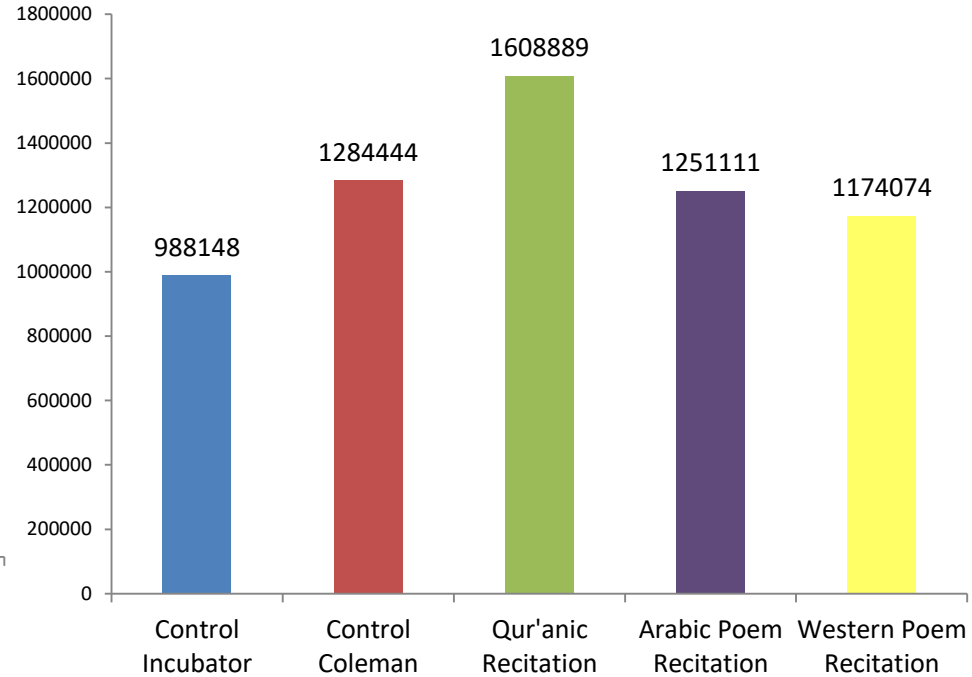
# RESULTS & DISCUSSIONS



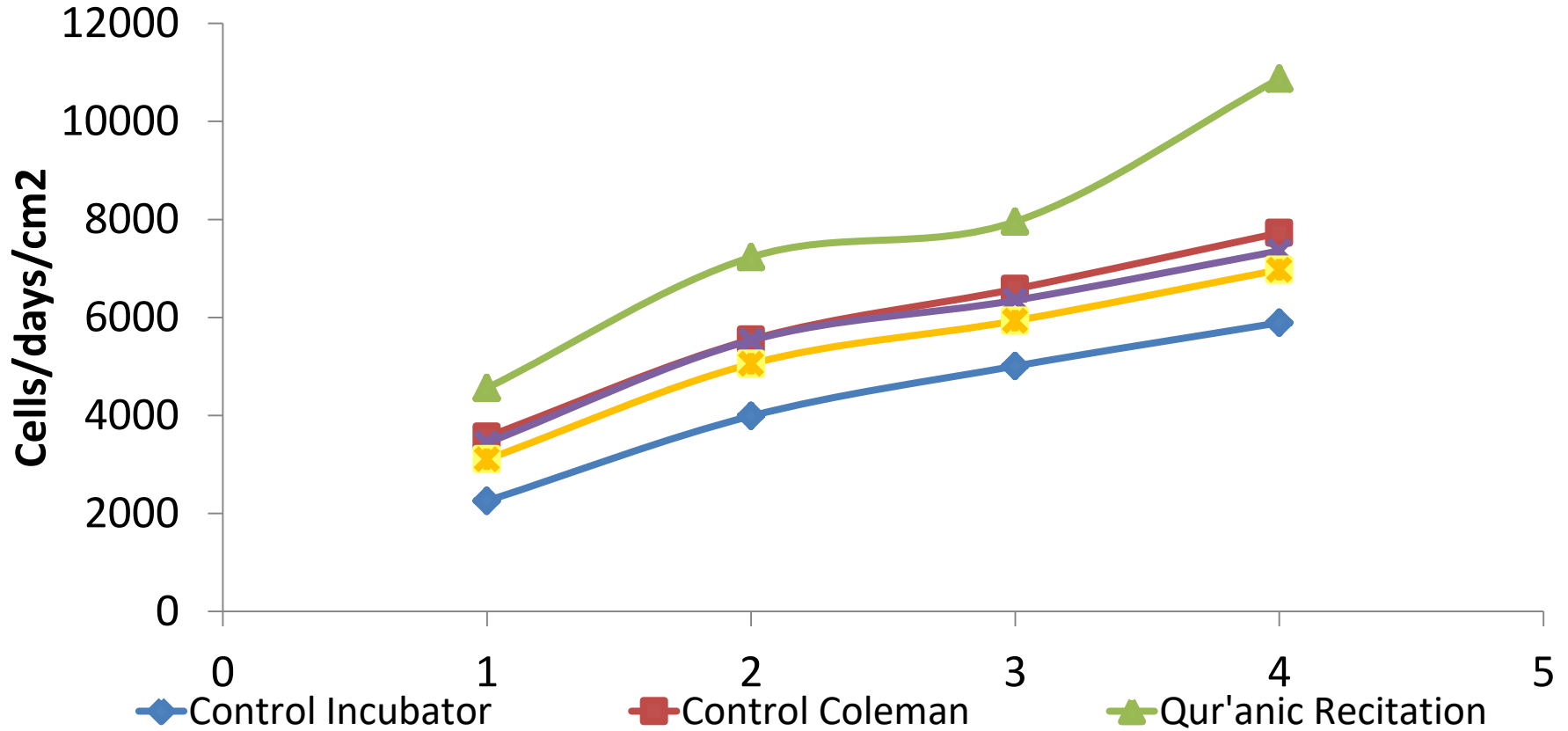
# 1. Cell Viability



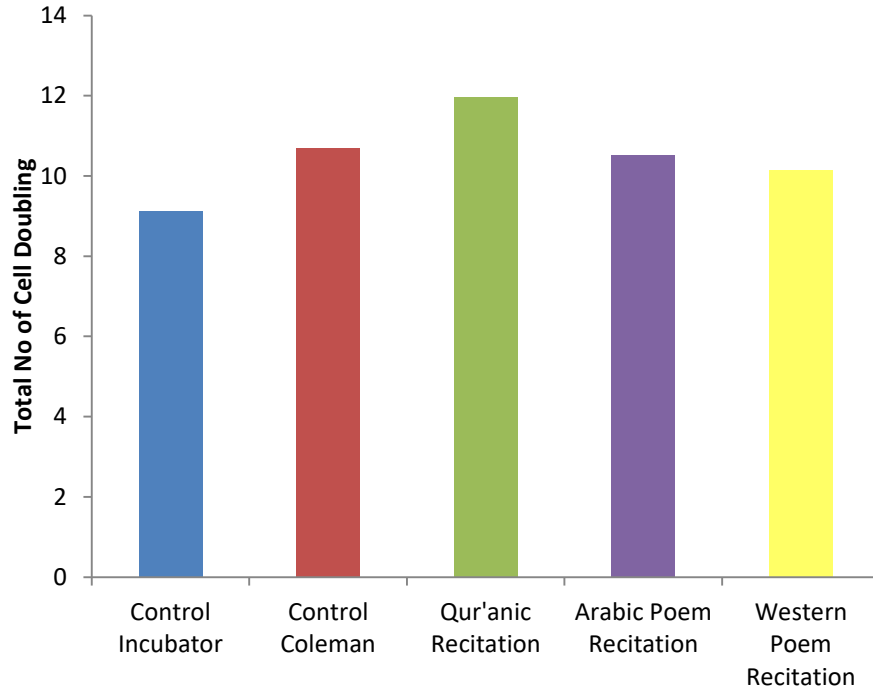
# 2. Total Cell Count



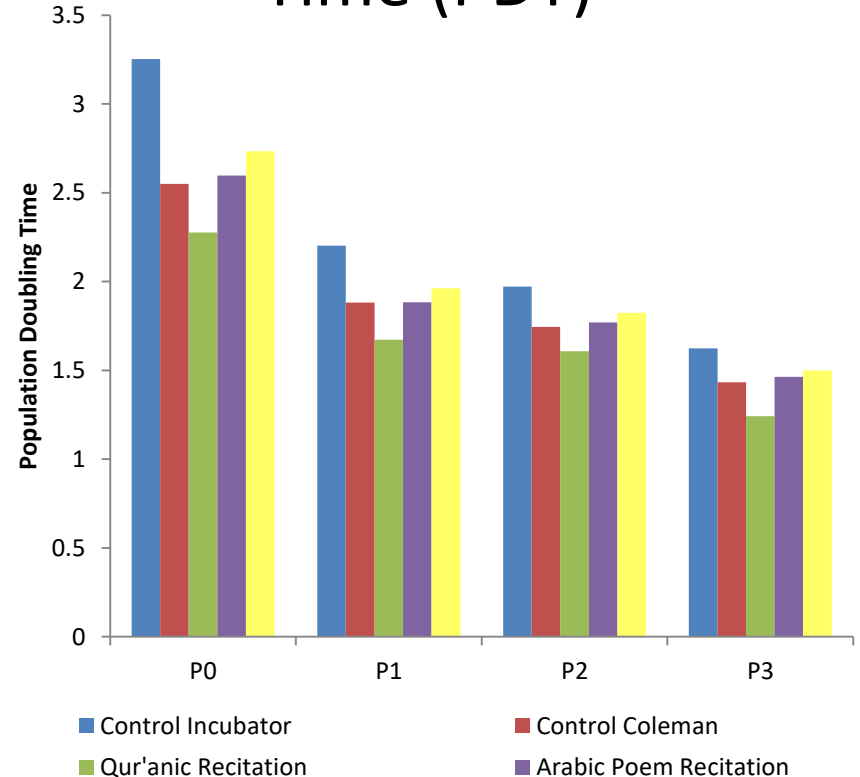
# 3. Growth Rate



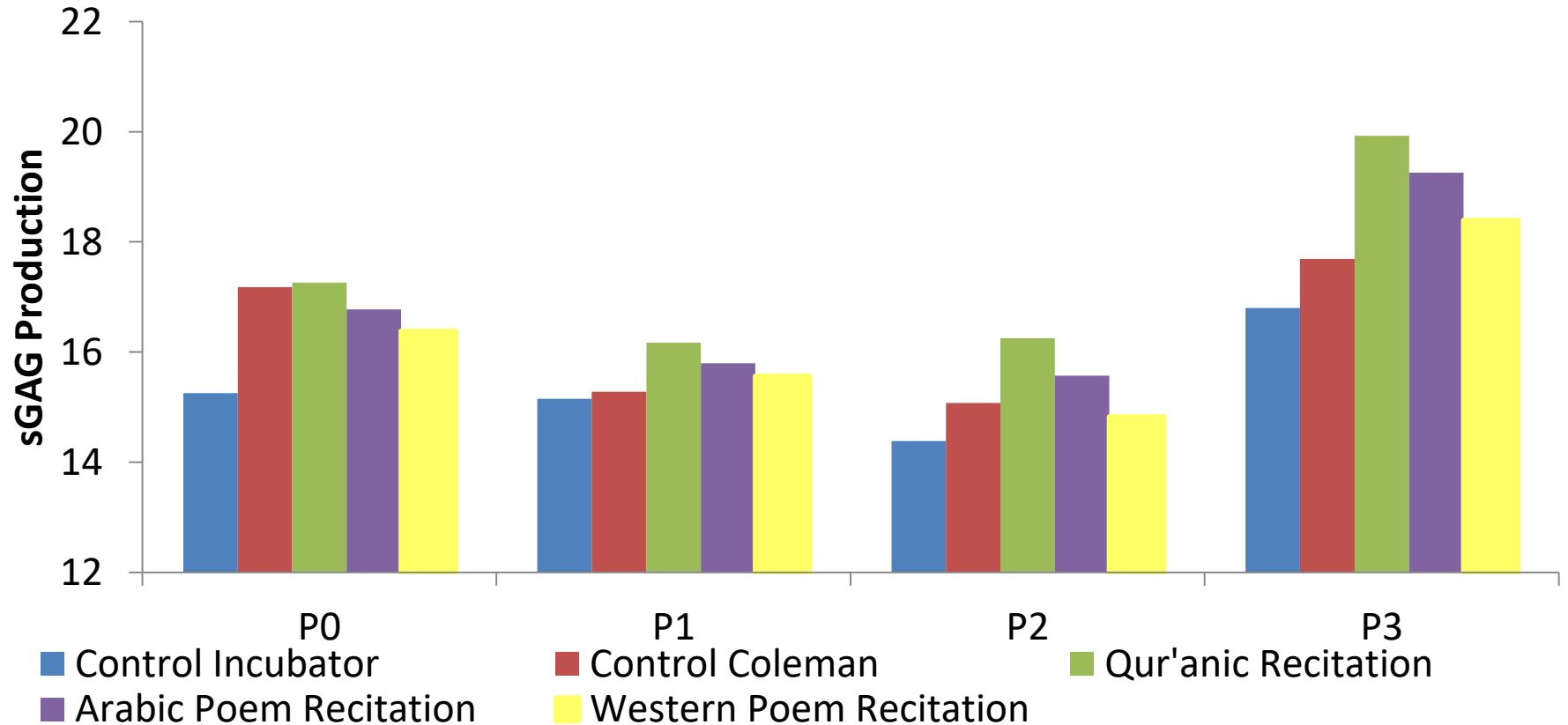
## 4. Total Number of Cell Doubling (TNCD)



## 5. Population Doubling Time (PDT)



# 6. sGAG Productions



# 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 other 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.



# WORLD FUTURE

1. Experiment should be conducted in larger scale.
2. 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.
3. Future work should also be directed to replicate this study on diseased cells.

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