# ABSTRAK

# PREBIOTIC PROPERTIES OF OKRA INFUSED WATER REDUCE GLUCOSE AND HBA1C LEVEL IN DIABETIC RATS

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**Abstract**

**Background:** Prebiotics are polysaccharides proved to be beneficiary for human's health. Okra (*Abelmoschus esculentus Moench.)* infusion water/OIW is considered having prebiotic properties, since Okra contain a considerable amount of polysaccharides. Administration of polysaccharide is able to control glucose level in diabetic rats. **Aim:** to determine the okra's ability in enhancing glucose and HbA1C level in diabetic induced rats. **Methods:** Posttest only control group design was used in this experimental study. Eighteen wistar rats aged 2 months, weigh 250 grams, randomly divided into 3 groups: Control, diabetic rats (DM), and Okra (OK). Control received only standard diet. Two other groups were induced with streptozotocin 65 mg/kg BW and nicotinamide 110 mg/kg BW for 4 days. After the desirable glucose level was achieved, OK group received 3.6 ml OIW for 28 days, while the DM groups received standard diet. OIW was made from three fresh pods of okra infused in 200 ml potable water, given only 3.6 ml using gauge. Blood specimen was obtained from ophthalmic vein at day 40. Data was analyzed using ANOVA, considered significance only if $p<0.05$. This research was conducted after has been approved by Ethic Commission of Medicine Faculty of UNISSULA. **Results:** Fasting and postprandial glucose level of OK group (137.40 & 154.58 mg/dL) were lower than DM group (251.77 & 270.18 mg/dL), $p<0.05$. HbA1C level of OK group (7.93%) was lower than DM group (21.29%), $p<0.05$. **Conclusion:** Prebiotic properties of Okra infused water has ability to enhance glucose and HbA1C level in diabetic induced rats.

**Keywords**: prebiotic, okra infused water, hyperglycaemic level

**LETTER OF ACCEPTANCE**

**5th International Symposium on Probiotics and Prebiotics**

*"From Translational Research to Clinical Application"*

**1-2 Desember 2018 - Bumi Surabaya City Resort**

No. : 117/ISPP/2018 Surabaya, 22 Nov 2018
Attachment : 1 (one) documents
Subject : Poster Viewing

Dear Nurina Tyagita,

Warmest greetings from **The 5th International Symposium on Probiotcis and Prebiotics (ISPP)** committee!

We are pleased to inform you that your abstract entitled

"**PREBIOTIC PROPERTIES OF OKRA INFUSED WATER ENHANCE GLUCOSE AND HBA1C LEVEL IN DIABETIC RATS**"

would be **displayed as POSTER** at "***The 5th ISPP (International Symposium on Probiotics and Prebiotics).***

The poster guideline has been attached below. Please kindly read them thoroughly and inform the committee if there are any changes. Poster number will be given by the committee onsite. Please do contact the committee first before you display your poster.

If you have any questions, please do not hesitate to contact us.

Thank you very much.

**Best Regards,**

The 5th International Symposium
on Probiotics and Prebiotics
**Head of Committee**

IGM Reza Gunadi Ranuh, MD, PhD, Consultant Pediatrician

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# PREBIOTIC PROPERTIES OF OKRA INFUSION WATER REDUCE GLUCOSE AND HBA1C LEVEL IN DIABETIC RATS

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## 1 BACKGROUND

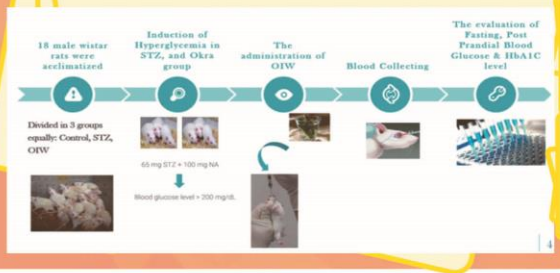
Prebiotics are polysaccharides proved to be beneficiary for human's health. Okra (*AbelmoschusesculentusMoench.)* infusion water/OIWis considered having prebiotic properties, since Okra contain a considerable amount of polysaccharides. Administration of polysaccharide is able to control glucose level in diabetic rats.

## 2 AIM

To determine the okra's ability in reducing glucose and HbA1C level in diabetic induced rats.

## 3 METHODS

Posttest only control group design was used in this experimental study. Eighteenwistar rats aged 2 months, weigh 250 grams, randomly divided into 3 groups: Control, diabetic rats (DM),and Okra (OIW). Control received only standard diet. Two other groups were induced with streptozotocin 65 mg/kg BW and nicotinamide 110 mg/kg BW for 4 days. After the desirable glucose level was achieved, OIWgroup received 3.6 ml OIW for 28 days, while the DM groups received standard diet and potable water only. OIW was made from three fresh pods of okra infused in 200 ml potable water, given only 3.6 ml using gauge. Blood specimen was obtained from ophthalmic vein at day 40. Data was analyzed using ANOVA, considered significance only if $p<0.05$. This research was conducted after has been approved by Ethic Commission of Medicine Faculty of UNISSULA No.338/X/2017/KomisiBioetik.




## 4 RESULTS

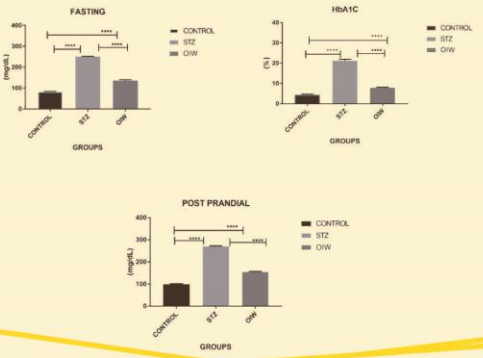
Fasting and postprandial glucose level of OK group (137.40&154.58 mg/dL) were lower than DM group (251.77&270.18mg/dL), $p<0.05$. HbA1C level of OK group (7.93%) was lower than DM group (21.29%), $p<0.05$.

Table 1. Mean Fasting Blood Glucose Level (±SD) after injected with STZ & NA

| | STZ | OIW | p |
|---|---|---|---|
| Blood Glucose Level (mg/dL) | 225.34±5.11 | 221.28±4.78 | 0.077 |

Table 2. Mean (±SD) Fasting, postprandial glucose level, HbA1C, SOD, and CRP level after treatment (at day 40)

| Variable | CONTROL | STZ | OKRA | p ANOVA |
|---|---|---|---|---|
| Fasting Glucose (mg/dL) | 83.68±0.46 | 251.77±1.03 | 137.4±3.57 | 0.000 |
| Postprandial Glucose (mg/dL) | 98.48±3.09 | 270.18±3.03 | 154.58±2.71 | 0.000 |
| HbA1C (%) | 4.37±0.41 | 21.29±0.65 | 7.93±0.25 | 0.000 |




## 5 CONCLUSION

Prebiotic properties of Okra infused water has ability to reduce glucose and HbA1C level in diabetic induced rats.

## 6 KEYWORDS

Prebiotic, okra infused water, hyperglycaemic level