

Efek ekstrak daun mengkudu (*Morinda citrifolia* L) terhadap integritas DNA sperma yang dideteksi dengan metode halosperm = The effect of noni leave extract (*Morinda citrifolia* L) to the integrity of sperm DNA detected by halosperm method

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Abstrak

Latar belakang dan tujuan: Berdasarkan studi buah mengkudu lebih dikenal berkhasiat antikanker, melalui kemampuan sitotoksiknya dengan menginduksi apoptosis terhadap sel kanker, sehingga lebih dinilai ekonomis. Penelitian ini bertujuan untuk mengetahui apakah daun mengkudu memiliki kemampuan sitotoksik dan bahan aktif yang sama seperti pada buahnya yang dapat mempengaruhi sistem reproduksi khususnya fragmentasi DNA sperma yang menurunkan integritas DNA sperma dengan menggunakan ekstrak air dan etanol daun mengkudu. Integritas DNA sperma sangat penting untuk menentukan keberhasilan fertilisasi bagi pria. Penelitian ini dilakukan untuk meningkatkan potensi tanaman mengkudu. Akan tetapi penelitian pengaruh daun mengkudu terhadap DNA sel sperma manusia belum dilakukan.

Metode: Lima belas sampel semen yang telah memenuhi syarat inklusi diinkubasi selama 30 menit dalam ekstrak air dan etanol daun mengkudu, dengan konsentrasi kontrol, 125 mg/ml, 250 mg/ml, 500 mg/ml dan 1000 mg/ml. Untuk mengetahui efek ekstrak air dan etanol daun mengkudu terhadap fragmentasi yang menurunkan integritas DNA sperma dilakukan deteksi dengan metode halosperm. Data diuji normalitas menggunakan metode Kolmogorov-Smirnov test dan General Linear Model (GLM) Repeated Measures ANOVA.

Hasil: Ekstrak air dan etanol daun mengkudu menurunkan integritas DNA sperma dibandingkan kontrol. Pada setiap peningkatan konsentrasi ekstrak air daun mengkudu yaitu 125 mg/ml, 250 mg/ml, 500 mg/ml dan 1000 mg/ml terdapat perbedaan signifikan menurunkan integritas DNA sperma, sedangkan ekstrak etanol daun mengkudu pada konsentrasi 125 mg/ml-1000 mg/ml menunjukkan tidak berbeda signifikan menurunkan integritas DNA sperma.

Kesimpulan: Efek ekstrak air daun mengkudu pada peningkatan konsentrasi 125 mg/ml-1000 mg/ml semakin menurunkan integritas DNA sperma.

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Background and objective: Based on studi Noni is better known to have special virtue as anticancer through its cytotoxic ability inducing apoptosis to cancer cell. This makes Noni has more economical value. This research would like to find out whether leave has cytotoxic ability and the same active material as in its fruit affect reproduction system especially the fragmentation of DNA sperm, which could decrease the integrity of sperm DNA. As the integrity of DNA sperm is very important to determine the success of fertilisation of a man. This research has been done to increase potential on Noni plant. But the effect of Noni to the reproduction system especially to a human's DNA sperm cell has not been done.

Method: Fifteen semen samples which were qualified from inclusion requirements were incubated for 30 minutes in the water extract and Noni leave ethanol, through control concentration of 125 mg/ml, 250 mg/ml, 500 mg/ml, and 1000 mg/ml. To find out the effect of water extract and Noni leave ethanol to the fragmentation which decreased the integrity of DNA sperm, detection was done by halosperm method. The data was tested the normality through the method of Kolmogorov-Smirnov test and General Linear Model (GLM) Repeated Measures ANOVA.

Result: Water extract and Noni leave ethanol could decrease the integrity of sperm DNA compared to the control. In each of concentration increase on Noni leave water extract, i.e. 125 mg/ml, 250 mg/ml, 500 mg/ml, and 1000 mg/ml, had a significant difference in decreasing the integrity of sperm DNA, meanwhile Noni leave ethanol extract in the concentration of 125 - 1000 mg/ml, indicated no significant differences in decreasing the integrity of sperm DNA.

Conclusion: The effect of Noni leave water extract in the concentration increase of 125 mg/ml - 1000 mg/ml progressively decreased the integrity of sperm DNA.