ABSTRAK

Azka Fikria Auzaky
KOMPARASI HASIL *Cycle Threshold* GEN SAP2 *Candida albicans* PADA SAMPEL SWAB MUKOSA MULUT *DUAL USER CIGARETTES* DAN PEROKOK ELEKTRIK DENGAN METODE *REAL TIME* PCR
xv + 106 Halaman + 5 Tabel + 10 Lampiran

Candida albicans merupakan flora normal yang terdapat di rongga mulut dan dapat menjadi patogen oportunistik ketika terjadi perubahan lingkungan, seperti penurunan pH akibat kebiasaan merokok. Kebiasaan merokok, baik dalam bentuk rokok konvensional, elektrik, maupun kombinasi keduanya (*dual user*), dapat meningkatkan kolonisasi dan virulensi *Candida albicans* dengan salah satu indikator virulensinya berupa ekspresi gen SAP2 (*Secreted Aspartyl Proteinase 2*). *Real Time* PCR merupakan metode yang digunakan untuk mendeteksi ekspresi gen tersebut melalui nilai *cycle threshold* (CT).

Penelitian ini dilakukan pada April hingga Mei 2025 di Poltekes Kemenkes Surabaya dengan subjek penelitian *dual user cigarettes* dan perokok elektrik penelitian ini dilakukan untuk mengetahui dan membandingkan ekspresi gen SAP2 *Candida albicans* berdasarkan nilai CT pada kelompok *dual user cigarettes* dan perokok elektrik.

Penelitian ini menggunakan desain observasional analitik dengan pendekatan *cross-sectional*. Sampel swab mukosa mulut diambil dari 15 *dual user cigarettes* dan 15 perokok elektrik yang memenuhi kriteria inklusi. Isolasi DNA dilakukan dilanjutkan dengan amplifikasi gen SAP2 menggunakan metode *Real Time* PCR.

Rerata nilai CT gen SAP2 pada kelompok *dual user cigaerettes* lebih rendah dibandingkan kelompok perokok elektrik. Nilai CT yang lebih rendah menunjukkan jumlah salinan gen target yang lebih tinggi, yang berarti ekspresi gen SAP2 lebih tinggi. Namun, berdasarkan uji statistik tidak terdapat perbedaan cukup signifikan dalam ekspresi gen SAP2 *Candida albicans* antara *dual user cigarettes* dan perokok elektrik.

Kata kunci: *Candida albicans*, gen SAP2, Real Time PCR, dual user, perokok elektrik, cycle threshold
Daftar bacaan: 32 buku (2014-2023)

ABSTRACT

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COMPARISON THE RESULTS OF THE CYCLE THRESHOLD OF THE SAP2 GEN OF Candida albicans IN ORAL MUCOSAL SWAB SAMPLES OF DUAL USER CIGARETTES AND ELECTRIC SMOKERS USING REAL TIME PCR METHOD
xv + 106 *Pages* + 5 *Tables* + 10 *Appendices*

Candida albicans is a normal flora in the oral cavity that can become an opportunistic pathogen when environmental conditions change, such as a decrease in pH due to smoking habits. Smoking—whether conventional, electronic, or both (dual user)—can increase colonization and virulence of Candida albicans. One of the virulence markers is the expression of the SAP2 (Secreted Aspartyl Proteinase 2) gene, which plays a role in epithelial tissue invasion and immune evasion. Real Time PCR is a sensitive method used to detect this gene expression through the cycle threshold (CT) value.

This study was conducted from April to May 2025 at the Poltekes Kemenkes Surabaya with research subjects of dual user cigarettes and electric smokers. This study was conducted to determine and compare the expression of the SAP2 Candida albicans gene based on CT values in the dual user cigarettes amd electric smoker groups.

This research employed an analytical observational design with a cross-sectional approach. Oral mucosa swab samples were collected from 15 dual users and 15 electronic cigarette users who met the inclusion criteria. DNA extraction was followed by amplification of the SAP2 gene using Real Time PCR.

The mean CT value of the SAP2 gene in the dual user group was lower than in the electronic smoker group. A lower CT value indicates a higher target gene copy number, which means higher SAP2 gene expression. The mean CT value of the SAP2 gene in the dual user group was lower than the e-cigarette group. A lower CT value indicates a higher number of copies of the target gene, which means higher SAP2 gene expression. But based on statistical tests, there was no significant difference in the expression of the SAP2 gene of Candida albicans between dual user cigarettes and e-cigarette smokers.

Keywords*: Candida albicans, SAP2 gene, Real Time PCR, dual user, electronic smoker, cycle threshold.*
References: 32 books (2014-2023)