

Deteksi pembentukan dna adduct 8-hidroksi-2'-deoksiguanosin (8-ohdg) secara in vitro dan in vivo pada urin tikus terpapar metil paraben =  
Detection of dna adduct 8-hydroxy-2'-deoxyguanosine (8-ohdg) formation through in vitro and in vivo study using rat urine exposed to methylparaben.

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Abstrak

Metil paraben merupakan salah satu bahan kimia yang banyak digunakan sebagai pengawet karena aktivitas antimikrobanya yang tinggi dan efektif dalam melindungi produk terhadap ragi dan jamur. Namun paparan metil paraben yang terus menerus dapat menyebabkan dampak buruk terhadap kesehatan dengan memproduksi spesi oksigen reaktif yang dapat memicu kerusakan oksidatif pada Asam Deoksiribonukleat (AND). Indikator biologis terjadinya kerusakan oksidatif DNA yang diamati pada penelitian ini adalah senyawa 8-Hidroksi-2'-Deoksiguanosin (8-OHdG). Melalui studi *in vitro*, diuji pengaruh penambahan metil paraben, waktu inkubasi 5 dan 7 jam, dengan dan tanpa radiasi sinar UVA pada kondisi pH 7,4 dan temperatur 37°C. Diperoleh hasil konsentrasi 8-OHdG tertinggi pada sampel 2-deoksiguanosin dengan penambahan metil paraben, waktu inkubasi yang lebih lama (7 jam), serta dengan paparan radiasi UVA. Sedangkan melalui studi *in vivo*, penambahan metil paraben pada pakan tikus menyebabkan terbentuknya senyawa 8-OHdG yang terdeteksi pada urin.

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Methylparaben is considered as one of the most infamous material used as a preservative for its high and effective antimicrobe activity against yeast and fungi. Yet despite its advantages, being exposed to methyl paraben continuously can cause damaging effects towards health; which is caused by its contribution towards the production of Reactive Oxygen Species that may lead to Deoxyribonucleic Acid (DNA) damage through oxidative stress. The DNA Adduct 8-Hydroxy-2'-Deoxyguanosine (8-OHdG) is commonly used as a biological indicator for DNA oxidative damage in the body. Through in vitro studies, the amount of 8-OHdG production by methylparaben and Ultraviolet-A rays (UVA) exposure is analysed. In vitro analysis was conducted in physiological pH (7,4), with incubation time varied of 5 and 7 hours, temperature set to 37°C, with and without the exposure of UVA rays. The result was 8-OHdG formation peaked when 2'-deoxyguanosin was exposed to methylparaben and UVA rays for the longest period (7 hour). Meanwhile, through in vivo studies, known that rats exposed to methyl paraben will show an increase of 8-OHdG concentration.