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Validasi isolat cannabinol (cbn) dari tanaman ganja (cannabis sativa l.) sebagai baku pembanding sekunder = Validation of cannabinol isolate from cannabis sativa l as a secondary reference standard

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Abstrak

Ganja merupakan narkotika yang banyak disalahgunakan di Indonesia, karena tanaman ganja mudah tumbuh di daerah tropis sehingga mudah diperoleh dan lebih murah dibandingkan jenis narkotika lainnya. Dalam rangka mendukung peran serta pemerintah dalam pengawasan peredaran dan penyalahgunaan ganja ilegal, laboratorium pengawasan membutuhkan metode yang valid untuk pengujian ganja. Validitas metode didukung oleh ketersediaan baku pembanding analisis. Baku pembanding narkotika salah satunya adalah baku pembanding cannabinol (CBN) dalam pengujian ganja, sulit di peroleh di Indonesia karena harganya mahal dan birokrasi impor yang rumit. Penelitian ini dilakukan untuk memperoleh senyawa CBN murni dari sisa sampel barang bukti kasus peredaran ganja ilegal untuk pembuatan baku pembanding sekunder cannabinol. Senyawa CBN murni berhasil diisolasi dengan metode ekstraksi maserasi dibantu ultrasonikasi, serta pemisahan dengan kromatografi kolom dan pemurnian dengan HPTLC preparatif. Ultrasonikasi meningkatkan efisiensi ekstraksi dimana waktu ekstraksi secara maserasi berkurang dari 24 jam menjadi 5 jam, dan yield meningkat sebesar 5,536%. Karakterisasi titik leleh, Spektrofotometer UV, FTIR, GCMS, LCMSMS dan NMR terhadap isolat CBN murni yang dihasilkan membuktikan bahwa isolat adalah senyawa cannabinol (CBN) dengan titik leleh 74,36 °C, rumus kimia C21H26O2 dan bobot molekul sebesar 310 g/mol. Uji kuantitatif secara GCMS diperoleh kadar CBN pada isolat sebesar 98,13%. Berdasarkan hasil karakterisasi, kemurnian, homogenitas dan stabilitas dari isolat CBN murni, maka isolat tersebut memenuhi persyaratan sebagai baku pembanding sekunder cannabinol (CBN). Selanjutnya baku pembanding sekunder cannabinol dan baku pembanding primer cannabinol dari Lipomed digunakan dalam pengujian penetapan kadar CBN terhadap sampel ganja secara GCMS, dan diperoleh hasil yang tidak berbeda signifikan secara statistik. Hal ini mengindikasikan bahwa baku pembanding sekunder cannabinol (CBN) dapat digunakan dalam pengujian ganja, maupun dalam validasi metode analisis.

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Cannabis is a narcotics that is widely abused in Indonesia, because of cannabis plant is easily to grow in tropical region like Indonesia, so that it is easily obtained and cheaper than other types of narcotics. In order to support the supervision and control of the distribution and abuse of illegal cannabis, surveillance laboratories need valid methods for testing cannabis. The validity of the method is supported by the availability of the reference standard material. Reference standard material of cannabinol (CBN) for cannabis testing, is difficult to obtained in Indonesia because of the high price and complicated import bureaucracy. This research was conducted to obtain pure CBN compounds from the remaining samples of evidence of cases of illegal cannabis distribution to produce a secondary reference standard of cannabinol. Pure CBN compounds were successfully isolated by ultrasonication-assisted maceration extraction methods, as well as separation by column chromatography and purification by Preparative HPTLC. Ultrasonication increases the extraction efficiency where the maceration extraction time is reduced from 24 hours to 5 hours, and the yield increases by 5.536%. Characterization by DSC, UV, FTIR, GCMS, LCMSMS and NMR

spectrophotometers against pure CBN isolates produced proved that the isolates were cannabinol (CBN) compounds with melting point 74.10 °C, chemical structure is C21H26O2, and molecular weights is 310 g/mol. GCMS quantitative test obtained CBN purity in isolates was 98.13%. Based on the results of the characterization, purity, homogeneity and stability of pure CBN isolates, these isolates meet the requirements as a secondary reference standard of cannabinol (CBN). Furthermore, the cannabinol secondary comparison standard and the cannabinol primary reference standard from Lipomed were used in testing the determination of CBN purity on cannabis samples by GCMS, and the results obtained were not statistically significant different. This indicates that the secondary comparison standard cannabinol (CBN) can be used in cannabis testing, as well as in the validation of analytical methods.