



PRESIDENZA DEL CONSIGLIO DEI MINISTRI
Ministro per la Cooperazione Internazionale e l'Integrazione
Dipartimento Politiche Antidroga

Reitox workshop: exchange on data collection challenges related to new psychoactive substances

19-20 April 2012, Budapest, Hungary

Panel 1

Recent changes of the control system in Italy

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- **New possibility:** the Ministry of Health, in agreement with the DPA, issued an **Order** as preventive measure to control, and early remove from the market, dangerous products sold both in smart shops and on internet.
- **New procedure:** the DPA in agreement with the Ministry of Health shortened the time to put new drugs in the list of illicit drugs.



Control of substances

Specific control

- simple approach
- list of a large number of compounds by their systematic names
- list not exhaustive
- non-controlled analogues could rapidly appear on the illicit market

Generic control (useful when:)

- simple substitution patterns occur in a structural nucleus
- a number of structural analogues are already known
- synthesis of further analogues might be anticipated
- a large number of systematic names are not needed, the target group can be named with a single and simple definition.





New psychotropic molecules under control

Italy, by D.P.R. 309/90, Table I

**Law decree June 16th 2010,
(G.U. n.146 of 25/6/2010)**

- JWH-018
- JWH-073
- Mephedrone

**Law decree December 29th 2011,
(G.U. n.3 of 4/1/2012)**

- butylone
- **analogues**.structurally derived from the
2-amino-1-phenyl-1-propanone
- AM-694
- **analogues**.structurally derived from the
3-benzoylindole

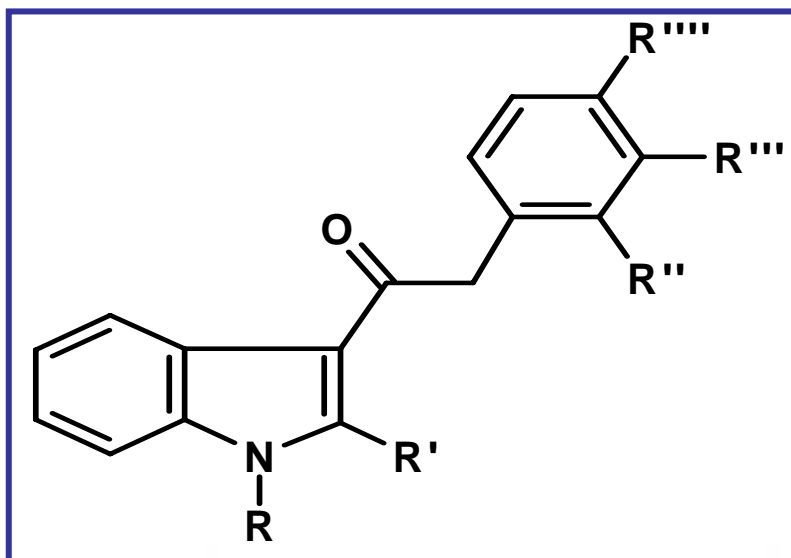
**Law decree May 11th 2011,
(G.U. n.112 of 16/5/2011)**

- MDPV
- JWH-250
- JWH-122
- **analogues** structurally derived from the
3-phenylacetylindole
3-(1-naphthoyl)indole



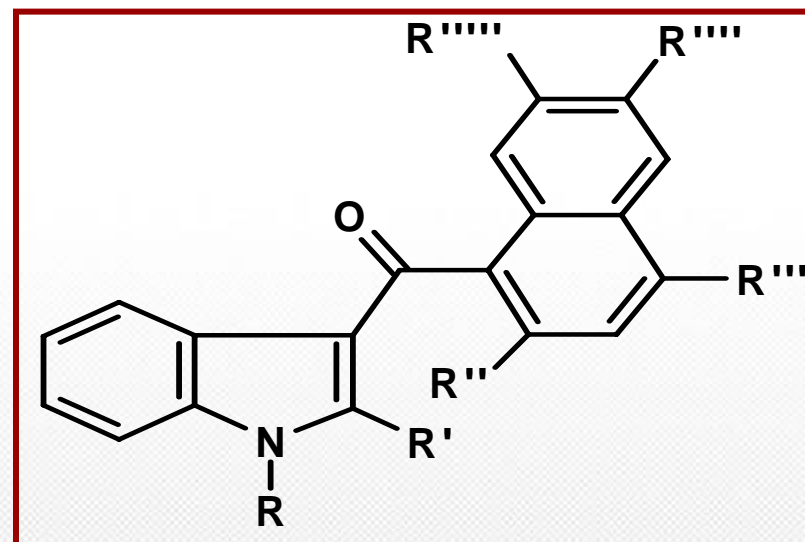
Analogues derived from *3-phenylacetylindole*

(with JWH-250) (n=29)



Analogues derived from *3-(1-naphthoyl)indole*

(with JWH-018, JWH-073, JWH 122) (n=96)





The affinity constant (K_i)

This constant correlates with pharmacological effects in animals

- The lower the value of K_i , the higher is the expected potency.
- Substances with high K_i values (low affinity for the CB_1 receptor) are unlikely to be misused.



POSSIBLE CRITERIA: the Power

Very High, or subnanomolar: $K_i < 1 \text{ nM}$

High: K_i 1-45 nM

Medium: K_i 45 - 100 nM

Low and very low: K_i 100- 1000 nM

Poor affinity: $K_i > 1000 \text{ nM}$

CB1

CB2

THC	$K_i = 41 \pm 2 \text{ nM}$	$K_i = 36 \pm 10 \text{ nM}$
JWH-250	$K_i = 11 \pm 2 \text{ nM}$	$K_i = 33 \pm 2 \text{ nM}$
JWH-122	$K_i = 0.69 \pm 0.5 \text{ nM}$	$K_i = 1.2 \pm 1.2 \text{ nM}$

(29 → 14)

(96 → 45)

affinity constant (K_i) for the CB_1 receptor, responsible for the psychoactive effects



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National Early Warning System



SISTEMA NAZIONALE DI ALLERTA PRECOCE
E RISPOSTA RAPIDA PER LE DROGHE
NATIONAL EARLY WARNING SYSTEM



Thanks for your attention

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