

**FCTC**WHO FRAMEWORK CONVENTION
ON TOBACCO CONTROL**Conference of the Parties to the
WHO Framework Convention
on Tobacco Control**Sixth session
Moscow, Russian Federation, 13–18 October 2014
Provisional agenda item 4.4.3**FCTC/COP/6/11
18 July 2014****Control and prevention of waterpipe
tobacco products****Report by the Convention secretariat****Background**

1. The WHO Framework Convention on Tobacco Control (WHO FCTC) defines “tobacco products” as those entirely or partly made of leaf tobacco as raw material which are manufactured to be used for smoking, sucking, chewing or snuffing, and establishes, in its Article 4.4, that comprehensive measures to reduce consumption of all tobacco products are essential to prevent the incidence of diseases, premature disability and mortality due to tobacco use. Furthermore, under Article 5.2(b) of the Convention, Parties are required to develop policies to prevent and reduce tobacco consumption, nicotine addiction and exposure to tobacco smoke.
2. Although cigarette smoking is the dominant form of tobacco use in most parts of the world, waterpipe (WP) use accounts for a significant and growing share of tobacco use globally.^{1,2} WP is also known under several names such as shisha, narghile, argihile, hookah, hubble-bubble, and goza. It has a variety of designs and shapes but essentially the tobacco smoke passes through a water bowl (base, bottle) before it reaches the mouth of the smoker via a hose.
3. WP use is most prevalent in Asia, Africa and the Middle East, but it is a rapidly emerging problem in other continents such as Europe, North America, and South America. In the WHO Eastern Mediterranean Region, WP use has surpassed cigarette use in some countries with growing use by men and women and most seriously among youth and children.

¹ WHO Study Group on Tobacco Product Regulation (TobReg) advisory note. Waterpipe tobacco smoking: health effects, research needs and recommended actions by regulators. Geneva: World Health Organization; 2005 (http://www.who.int/tobacco/global_interaction/tobreg/Waterpipe%20recommendation_Final.pdf?ua=1).

² Summary report on the WHO-EM/TFI/123/E expert workshop to prepare a new edition of the WHO advisory note on waterpipe tobacco smoking, Cairo, Egypt, 30–31 March 2014. World Health Organization Regional Office for the Eastern Mediterranean; 2014 (http://Applications.emro.who.int/docs/IC_Meet_Rep_2014_EN_15355.pdf).

4. The misconception about the safety of WP use compared to other smoked tobacco products, has contributed tremendously to its wide social and cultural acceptance and the observed sharp rise in its use globally.

5. WP use generates a large volume of smoke, which poses health risks to smokers and non-smokers who are exposed to it. WP use has been proven to be a cause of disease in several clinical studies.

6. Globally, policy-makers have generally paid little attention to WP and the regulatory peculiarities that are unique to its use. Thus far, most regulations have targeted cigarettes and WP use has been given less attention.¹ In addition to the tobacco leaves, additives, flavourings and the charcoal used to heat or burn the tobacco leaves are important features of WP products that necessitate special regulatory measures.

7. Over the past decade there has been growing interest among researchers in addressing the gaps in knowledge about WP and factors that have contributed to its widespread use globally. National surveys have only recently started addressing WP use specifically so that the leading contributing factors to initiation and continuation of use can be studied.

Waterpipe tobacco products: key facts

8. WP products are a heterogeneous group of products that vary widely in appearance and composition, and are used in various parts of the world; most contain both tobacco and non-tobacco constituents.

9. There are two major types of WP product. The first is traditional and is known in some communities as tumbak, tunbak or ajami. It consists of raw dried tobacco leaves, which are moistened with water immediately prior to use; it lacks flavourings. The second, Maasal or Mo'assal (the Arabic word for honey), is flavoured and sweetened. This type is manufactured through the fermentation of tobacco with molasses and fruit essence, which keeps the product moist and pliable until the time of its use. A great variety of flavourings, including fruits (e.g. apple, grape, cherry, lemon, coconut, banana), herbs (e.g. mint) and flowers (e.g. rose) are used. Because of the flavourings and reduced harshness, Maasal is today the most widely used WP tobacco products globally.

10. In all types, charcoal is used to heat or burn the tobacco product that is placed in the head of the pipe. This adds to the health risks of WP use and poses a unique challenge for regulation.

11. Most of the products available on the market are manufactured by the WP tobacco industry. Most of the known manufacturing is in Middle Eastern and North African countries. In 2013, a leading multinational tobacco company acquired Nakhla, the world's leading WP tobacco company with over 30% of the market by volume.² The WP tobacco market in the Middle East and Africa is flourishing, with a projected compound annual growth rate (CAGR) of 6% up to 2016, and CAGR of 5% and 7% in the two largest markets, Egypt and Saudi Arabia, respectively. The growth in the market might lead other Asian countries to manufacture WP tobacco products. The cottage industry contribution to the market is limited.

12. WP tobacco product packaging and labelling that comply with Article 11 of the WHO FCTC are found in only a few Parties. Several Parties (e.g. Argentina, Bangladesh, Ecuador, India, Namibia, South Africa, and Viet Nam) have specifically included WP tobacco in the definition of tobacco products in their laws and some (e.g. Israel, Lebanon, Russian Federation and Turkey) have specific warning requirements on WP tobacco packages. Turkey has extended the warning labelling to the bottles or bowls of the WP by requiring the placement of warnings on both sides of WP bottles to cover 65% of the surface. Packaging

¹ Tobacco control laws [website]. Washington (DC): Campaign for tobacco-free kids; 2014 (<http://www.tobaccocontrollaws.org/>).

² Japan Tobacco extends scope with acquisition of world's largest shisha manufacturer. Euromonitor international, 20 November 2012 (<http://blog.euromonitor.com/2012/11/japan-tobacco-extends-scope-with-acquisition-of-worlds-largest-shisha-manufacturer.html#sthash.DYXXf9bI.dpuf>).

typically displays bright colours, fruits, herbs or flowers with little or no mention of the word tobacco. A recent study identified the fact that health warnings on WP tobacco packaging and its accessories covered a surface area of less than 3%, whereas the recommendation is 30%.¹ Moreover, many packages show misleading information such as “0.05% nicotine, 0% tar” and “100% natural flavours”.²

13. In recent times, international exhibits have been held to promote WP tobacco products and WP accessories.

Contents and emissions of waterpipe tobacco products

14. The nicotine in WP products is responsible for their dependence potential (addictiveness). For a single smoking session of 10 g of massal tobacco with 1.5 quick-lighting charcoal disks applied to the WP head, 2.94 mg nicotine, 802 mg “tar”, and 145 mg CO are measured in the mainstream smoke.³

15. Analysis of the smoke identifies several carcinogens and toxicants, such as tobacco-specific nitrosamines (NNN, NNK), polycyclic aromatic hydrocarbons (benzo(a)pyrene, anthracene), aldehydes (formaldehyde, acetaldehyde, acrolein), and heavy metals (arsenic, chromium and lead). It is possible that acetaldehyde plays a role in enhancing the dependence potential effect of nicotine.⁴

16. Owing to the use of charcoal, WP smoke contains high levels of carbon monoxide. It also contributes to the generation of the carcinogenic polycyclic aromatic hydrocarbons.⁵

17. WP smoking generates a high volume of smoke that includes a high concentration of small particles that lead to air pollution and sharply exceed international air quality standards.⁶

Health conditions associated with waterpipe tobacco products

18. WP use is associated with deleterious health effects on the respiratory system, cardiovascular system, oral cavity and teeth.⁷

19. Acute exposure to the smoke leads to irritation of the mucosal surfaces of the oropharynx and conjunctiva. The emission of high levels of carbon monoxide leads to syncope among some users due to

¹ Nakkash R, Khalil J. Health warning labelling practices on narghile (shisha, hookah) waterpipe tobacco products and related accessories. *Tobacco Control*. 2010;19:235–9.

² Vansickel A, Shihadeh A, Eissenberg T. Waterpipe tobacco products: nicotine labelling versus nicotine delivery. *Tobacco Control*. 2012;21(3):377–9. doi:10.1136/tc.2010.042416.

³ Shihadeh A, Saleh R. Polycyclic aromatic hydrocarbons, carbon monoxide, “tar”, and nicotine in the mainstream smoke aerosol of the narghile water pipe. *Food and Chemical Toxicology*. 2005;43(5):655–61.

⁴ Ali R, Rastam S, Ibrahim I, Bazzi A, Fayad S, Shihadeh AL et al. A comparative study of systemic carcinogen exposure in waterpipe smokers, cigarette smokers and non-smokers. *Tobacco Control*. Published online 29 August 2013. doi:10.1136/tobaccocontrol-2013-051206.

⁵ Monzer B, Septjian E, Saliba N, Shihadeh A. Charcoal emissions as a source of CO and carcinogenic PAH in mainstream narghile waterpipe smoke. *Food and Chemical Toxicology*. 2008;46(9):2991–5. doi:10.1016/j.fct.2008.05.031.

⁶ Daher N, Saleh R, Jaroudi E, Sheheitli H, Badr T, Sepetdjian E et al. Comparison of carcinogen, carbon monoxide, and ultrafine particle emissions from narghile waterpipe and cigarette smoking: Sidestream smoke measurements and assessment of second-hand smoke emission factors. *Atmospheric Environment*. 2010;44(1):8–14. doi:10.1016/j.atmosenv.2009.10.004.

⁷ Akl E, Gaddam S, Gunukula S, Honeine R, Jaoude PA, Irani J. The effects of waterpipe tobacco smoking: A systemic review. *International Journal of Epidemiology*. 2010;39:834–57. doi:10.1093/ije/dyq002.

carbon monoxide intoxication secondary to the formation of carboxyhemoglobin in the blood, which compromises the transportation of sufficient oxygen to body parts including the brain.

20. Chronic WP smokers have higher incidence of chronic obstructive pulmonary disease, asthma and periodontal disease.

21. WP tobacco smoking is likely to be associated with the following types of cancer: oral cancer with an odds ratio (OR) of around 4, oesophageal cancer with an OR of 2.65, and lung cancer with an OR of 2.12. It is possibly associated with gastric carcinoma.¹

22. Incidence of low birth weight infants is higher in mothers that smoke WP during pregnancy than in non-smokers.¹

Prevalence of waterpipe tobacco use

23. WP use has not been traditionally included as such in global surveys on tobacco; only in recent years has it been designated in some surveys.

24. Several epidemiological studies have highlighted the growing use of WP in all WHO regions and among youth and adults of both genders.² According to the Global Youth Tobacco Survey, which assesses tobacco use among 13–15-year-old children, there was an increase in use of other tobacco products (besides cigarettes) in 34 of 100 sites surveyed, and the increase was largely attributed to rising WP use. WP smoking ranged from 6% to 34% in the countries that reported data.³

25. In countries where the use of WP has not been traditionally known, a similar trend is observed. In the National College Health Assessment survey in the United States of America, of the 104 434 university students who had complete data for cigarette, WP, and cigar use, 8733 (8.4%) were current WP users. In this group, 4492 (51.4%) reported no current use of cigarettes and 3609 (41.3%) reported no current use of other forms of tobacco. In contrast, of the 104 434 respondents, 31 749 (30.4%) had used a WP at some time. In this group, 9423 (29.7%) reported never using cigarettes and 6198 (19.5%) reported never using tobacco of any kind.⁴ In the United Kingdom of Great Britain and Northern Ireland, prevalence among university students lies between 7% and 11%, and for secondary school students is 12%.⁵

26. Several factors have contributed to this growing epidemic. Most important are: (a) the introduction of flavoured WP tobacco with its reduced harshness and perceived pleasant flavour and aroma; (b) the misperception that it is “healthier” than cigarette smoking; (c) social acceptance and being an essential part of family, peer and public gatherings, and café and restaurant culture; (d) Internet, mass and social media; (e) low cost; (f) lack of WP-specific policy and regulations towards its use; and (g) immigration of people from

¹ Nuwayhid IA, Yamout B, Azar G, Al Kouatly Kambris M. Narghile (hubble-bubble) smoking, low birth weight, and other pregnancy outcomes. *American Journal of Epidemiology*. 1998;148(4):375–83.

² Maziak W, Nakkash R, Bahelah R, Husseini A, Fanous N, Eissenberg T. Tobacco in the Arab world: old and new epidemics amidst policy paralysis. *Health Policy and Planning*. 2013;1–11. Published online 19 August 2013. doi:10.1093/heapol/czt055.

³ Warren CW, Lea V, Lee J Jones NR, Asma S, McKenna M. Change in tobacco use among 13–15 year olds between 1999 and 2008: findings from the Global Youth Tobacco Survey. *Global Health Promotion*. 2009;16(Suppl. 2):38–90. doi:10.1177/1757975909342192.

⁴ Primack BA, Shensa, Kim K, Carroll MV, Hoban MT, Leino EV et al. Waterpipe smoking among U.S. university students. *Nicotine and Tobacco Research*. 2013;15(1):29–35. Published online 28 May 2012. doi:10.1093/ntr/nts076.

⁵ Jawad M, Abass J, Hariri A, Rajasooriar KG, Salmasi H, Millett C et al. Waterpipe smoking prevalence and attitudes amongst medical students in London. *International Journal of Tuberculosis and Lung Disease*. 2013;17(1)137–40. doi:10.5588/ijtld.12.0175.

Middle Eastern countries to the European Region, the Region of the Americas, and the Western Pacific Region.

27. In all regions where WP use is prevalent, it affects all socioeconomic groups. In some regions, such as Europe and the Americas, WP use has been gaining acceptance by middle to high socioeconomic status groups and those with college education. It is alarming that in some countries, particularly within the Eastern Mediterranean Region, initiation of use is observed in children younger than 10 years of age.¹

28. Concomitant use of other tobacco products is observed and there is concern that WP use among the young may be a gateway to the use of other forms, particularly cigarettes.

Economic and environmental aspects of waterpipe tobacco

29. Economic analysis of the WP market is relatively undeveloped, as that market is largely heterogeneous and non-consistent compared with the cigarette market.

30. There are documented anecdotal reports of illicit trade in WP products, but there are no comprehensive data on licit and illicit trade concerning WP tobacco, including the nature and volume of the WP tobacco trade within and between countries.^{2,3}

31. There are limited data on WP tobacco product prices, tax structures and levels applied to their importation, sales and excise taxation. In recent years, some Parties (e.g. Turkey) have increased their taxation rates on WP products. Knowledge about the extent to which higher taxes on WP products translate into higher prices and how these prices affect the affordability of WP products is also limited.

32. There is a strong economic link between the use of WP in public and the entertainment industry best represented by cafés and restaurants. In addition, WP tobacco product use seriously compromises indoor clean air acts.

Experience of the Parties to the Convention with respect to waterpipe products

33. Well documented experience with respect to WP tobacco products among the Parties is limited or non-existent. There are limited data available for Parties on consumption, manufacturing practices, advertising and promotional activities, contents, harmful effects and sociocultural factors associated with the use of WP.

34. Parties have increased awareness of WP tobacco and its use but only a few (e.g. Bahrain, Oman and Turkey) have introduced specific strategies and policies to address the matter. Several Parties in the Eastern Mediterranean Region (e.g. Egypt, Jordan and Lebanon), the European Region (e.g. Turkey) and the Region of the Americas (e.g. Brazil) have run national educational campaigns aimed at the public and schoolchildren on the harmful effects of WP use; many were run in cooperation with local nongovernment organizations.

35. Cooperation among Parties in the area of prevention and control of WP use is limited.

¹ McKelvey K, Wilcox M, Madhivanan P, Mzayek F, Khader YS, Maziak W. Time trends of cigarette and waterpipe smoking among a cohort of school children in Irbid, Jordan, 2008–11. *European Journal of Public Health*. 2013;23(5):862–7. doi:10.1093/eurpub/ckt140.

² All Party Parliamentary Group on Smoking and Health. Inquiry into the illicit trade in tobacco products. 2013: p.46. (<http://www.ash.org.uk/APPGillicit2013>).

³ Stepping up the fight against cigarette smuggling and other forms of illicit trade in tobacco products - A comprehensive EU strategy. Brussels: European Commission; 2013 (http://ec.europa.eu/anti_fraud/documents/2013-cigarette-communication/communication_en.pdf)

Summary of challenges, needs and opportunities linked to waterpipe tobacco prevention and control

36. The knowledge base, evidence and capacity for research in the areas of WP use, prevention and control all need to be strengthened. Research on WP is limited in general, and significant research gaps exist in regard to identifying the ingredients, additives, and toxicities of all WP products. An International Conference on Waterpipe Smoking Research has been formed recently and international funding agencies, such as the US National Institutes of Health and Canada's International Development Research Centre have been supportive of research on WP use in recent years. However, there is a lack of information in many countries concerning the types, variation, heterogeneity (including identification of the product itself) and composition of WP products. The added ingredients, levels of nicotine and other toxic and/or carcinogenic constituents vary widely among the many types of WP products, resulting in different levels and types of harmful health effects related to their consumption. Parties to the Convention, as part of their tobacco surveillance systems established in line with the requirements of Article 20 of the Convention, need to build capacity for regular monitoring of the patterns of use of WP in their jurisdictions and the impact on initiation and maintenance. There is also a need to strengthen data collection and reporting on matters related to production, trade (licit and illicit), taxation, pricing, policies on WP control, and their enforcement. Such measures will provide evidence required by policy-makers.

37. Due to the low cost of manufacturing WP products and relatively lower taxation rates when compared to cigarettes, WP products are relatively inexpensive and hence affordable to minors and youth. Taxation could be a useful tool to reduce the consumption of WP products by these groups and others, especially through harmonization of taxes between different smoked and smokeless tobacco products.

38. Standards and validation methods to test the contents of WP products are lacking. The heterogeneity of WP in developing countries poses an additional challenge to regulation and testing, but such information should be mandated, particularly in view of the documented presence of several toxicants and carcinogens among the contents and emissions of WP tobacco. Such data could be shared among the Parties and thus contribute to more effective regulation.

39. Targeted interventions are required to address the need for services that help WP users to quit. Experience shows that there is very limited support available for cessation of WP use. There is a need to promote cost-effective interventions and sharing of information, knowledge and tools for WP dependence treatment among developing countries with high prevalence of WP use.

40. Education of the public on the health effects of WP and to dispel the notion of its safety or the reduced harm of its use is needed. Such educational efforts should particularly target minors, parents and pregnant women.

41. The formulation, adoption, implementation and enforcement of specific policies and interventions to address WP use still need to be prioritized as part of the full implementation of the Convention in the majority of Parties, especially through the integration of WP prevention and control into all tobacco-control measures. In addition, while the guidelines adopted by the Conference of the Parties (COP) provide for detailed action to control all tobacco products, there is still room to extend their application to the framing of policies and actions that specifically target WP tobacco products. Examples include matters related to warning labels and their size, advertising, access of minors to the products, banning misleading information on packages, and signs in visible locations in cafés and restaurants informing the public of the prohibition on WP smoking. As has been the case with cigarettes, an inventory of warning labels is a means to facilitate such control measures.

42. Conducting well-controlled prospective studies to assess fully the long-term effects of WP use, especially given that the epidemic of the use of Maasal started in the early to mid-1990s is required. It is suggested that such an assessment include exposure biomarker studies that can serve regulatory purposes.

43. The use of charcoal poses a regulatory challenge regarding the generation of toxicants and carcinogens. Its contribution to fires is also to be assessed and Parties should consider establishing monitoring systems for that purpose.

44. There is a strong relationship between flavourings and the widespread use of WP tobacco products, and the banning of these additives in control measures should be considered.

45. With the projected growing market of WP products and their incorporation into the businesses of multinational tobacco companies, Parties should be watchful of efforts leading to the spread of their use and to reinforce implementation of Article 5.3 of the WHO FCTC.

46. While the potential for cooperation among the Parties in the scientific and technical fields in implementation of the WHO FCTC at country, regional and global levels is recognized, there is still a need to develop regional and international intercountry cooperation for the identification of best practices and promotion of strategies to prevent and control WP use and curb its spread. Parties facing challenges related to WP will also need to be supported in building capacity to formulate WP-specific policies and in the implementation of those policies.

Action by the Conference of the Parties

47. The COP is invited to note this report and provide further guidance.

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Ⅲ. 学会等発表実績

学会等発表実績

委託業務題目「たばこ由来の化学物質の曝露状況の標準的な測定法の開発に関する研究」

機関名 国立保健医療科学院

1. 学会等における口頭・ポスター発表

| 発表した成果（発表題目、口頭・ポスター発表の別） | 発表者氏名 | 発表した場所（学会等名） | 発表した時期 | 国内・外の別 |
|---|---|--|----------------|--------|
| Relationship between Smoking Topography and Biomarkers in Japanese Smokers, ポスター | Inaba Y, Utsugi R, Ohkubo T, Uchiyama S, Suzuki G, Kunugita N | 26th Annual Conference International Society for Environmental Epidemiology 2014 | 2014. 8. 24-28 | 国外 |
| タバコおよびタバコ関連製品から発生する揮発性有機化合物とカルボニル化合物の分析, 口頭 | 伊豆里奈, 内山茂久, 稲葉洋平, 中込秀樹, 樺田尚樹 | 第23回環境化学討論会 | 2014. 5. 14-16 | 国内 |
| 紙巻たばこ製品の葉及び主流煙に含まれるPo-210の分析, ポスター | 小林明莉, 稲葉洋平, 内山茂久, 太田敏博, 樺田尚樹 | 第23回環境化学討論会 | 2014. 5. 14-16 | 国内 |
| 国産無煙たばこと海外産無煙たばこに含まれる有害化学物質の比較, ポスター | 稲葉洋平, 大久保忠利, 内山茂久, 樺田尚樹 | 第23回環境化学討論会 | 2014. 5. 14-16 | 国内 |
| 無煙たばこ製品に含まれるニコチン、TSNA及びグリセロール類の分析, ポスター | 稲葉洋平, 大久保忠利, 内山茂久, 樺田尚樹 | 第84回日本衛生学会学術総会 | 2014. 5. 22-27 | 国内 |
| 国産たばこ8銘柄のたばこ葉中Po-210とPb-210の分析, ポスター | 小林明莉, 稲葉洋平, 内山茂久, 太田敏博, 樺田尚樹 | 第84回日本衛生学会学術総会 | 2014. 5. 22-27 | 国内 |
| The tobacco control measures through the effective implementation of the FCTC articles 9 and 10, 口頭 | Kunugita N, Inaba Y, Bekki K, Uchiyama S | 第73回日本癌学会学術総会 | 2014. 9. 25-27 | 国内 |
| たばこ規制枠組み条約に基づくたばこ製品の含有物に関する規制と情報開示, 口頭 | 樺田尚樹, 稲葉洋平, 戸次加奈江, 内山茂久 | 第73回日本公衆衛生学会総会 | 2014. 11. 5-7 | 国内 |
| 近年の国産たばこ主流煙に含まれる有害性化学物質の評価, ポスター | 野口華奈江, 戸次加奈江, 稲葉洋平, 内山茂久, 太田敏博, 樺田尚樹 | 第73回日本公衆衛生学会総会 | 2014. 11. 5-7 | 国内 |
| 無煙たばこ・スヌースの国産銘柄と海外産銘柄に含まれる有害化学物質の比較, ポスター | 稲葉洋平, 大久保忠利, 戸次加奈江, 内山茂久, 樺田尚樹 | 第73回日本公衆衛生学会総会 | 2014. 11. 5-7 | 国内 |

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|--|---|----------------|----------------|----|
| タバコ主流煙に含まれる有害ガス状物質の分析, ポスター | 伊豆里奈, 内山茂久, 戸次加奈江, 稲葉洋平, 中込秀樹, 櫻田尚樹 | 第73回日本公衆衛生学会総会 | 2014. 11. 5-7 | 国内 |
| 国産たばこと外国産たばこに含まれるポロニウムと鉛の分析法の確立と比較, ポスター | 小林明莉, 稲葉洋平, 戸次加奈江, 内山茂久, 太田敏博, 櫻田尚樹 | 第73回日本公衆衛生学会総会 | 2014. 11. 5-7 | 国内 |
| 無煙たばこから人口唾液へ移行したニコチン及びたばこ特異的ニトロソアミンの分析, ポスター | 小林明莉, 稲葉洋平, 戸次加奈江, 内山茂久, 太田敏博, 櫻田尚樹 | 日本薬学会第135年会 | 2015. 3. 25-28 | 国内 |
| 電子タバコから発生するカルボニル化合物の分析-1, ポスター | 内山茂久, 妹尾結衣, 伊豆里奈, 戸次加奈江, 稲葉洋平, 中込秀樹, 櫻田尚樹 | 日本薬学会第135年会 | 2015. 3. 25-28 | 国内 |
| 電子タバコから発生するカルボニル化合物の分析-2, ポスター | 妹尾結衣, 内山茂久, 伊豆里奈, 太田和司, 戸次加奈江, 稲葉洋平, 中込秀樹, 櫻田尚樹 | 日本薬学会第135年会 | 2015. 3. 25-28 | 国内 |

2. 学会誌・雑誌等における論文掲載

| 掲載した論文(発表題目) | 発表者氏名 | 発表した場所(学会誌・雑誌等名) | 発表した時期 | 国内・外の別 |
|---|-------------------------------------|------------------|--------|--------|
| 薬用吸煙剤ネオシーダーの葉中及び主流煙中の有害化学成分と変異原活性の測定 | 稲葉洋平, 大久保忠利, 杉田和俊, 内山茂久, 緒方裕光, 櫻田尚樹 | 日本衛生学雑誌 | 2014 | 国内 |
| 固体捕集管を用いた国産タバコ主流煙中の揮発性有機化合物, カルボニル化合物の同時捕集とGC/MS, HPLC分析 | 伊豆里奈, 内山茂久, 戸次加奈江, 稲葉洋平, 中込秀樹, 櫻田尚樹 | 分析化学 | 2014 | 国内 |
| 個人輸入たばこ及び同銘柄の国産たばこに含まれるタール・ニコチン・一酸化炭素及びたばこ特異的ニトロソアミンの分析 | 稲葉洋平, 大久保忠利, 内山茂久, 櫻田尚樹 | 日本衛生学雑誌 | 2014 | 国内 |
| タバコ煙の化学的組成 | 稲葉洋平, 内山茂久, 櫻田尚樹 | 日本小児科医会会報 | 2014 | 国内 |
| 我が国におけるたばこ規制枠組み条約第9, 10条「たばこ製品の成分規制とたばこ製品の情報開示に関する規制」に基づいたたばこ対策の必要性 | 稲葉洋平, 内山茂久, 櫻田尚樹 | 日本衛生学雑誌 | 2015 | 国内 |
| タバコ対策. 鳩野洋子, 島田美喜 編 | 稲葉洋平 | 医学書院 | 2014 | 国内 |

