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Activity Concentrations Of 210Po In Philippine Cigarettes

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Abstract

The tobacco was separated from the cigarette filter and wrapper. The tobacco samples were put in oven and dried to constant weight at 105 ◦C. The sample was mixed to achieve homogeneity by using a mortar and pestle. 2.0 g of dried tobacco was put in a beaker, 0.1 mL of 209Po tracer (0.105 Bq) (Standard Reference Material 4326, National Institute of Standard and Technology, USA) was added to the dried material. The dried samples were put on a hot plate (90—95 ◦C) with 10 mL HNO3 (60% weight/weight) and 10 mL HCl (35% weight/weight). Occasionally, a few drop of H2O2 (30% weight/weight) and octanol (98% weight/weight) was added to the sample. When approaching near dryness, 20 mL HCl (35% weight/weight) was added.

Introduction

In this work, four brands of imported tobacco plants (leaves) commonly used in the manufacture of cigarettes in Algeria, commercially named: Basma (TAB1) type from Greece, Burley (TAB2) and Havane (TAB3) brands from Italy, and the last one Burley (TAB4), which is from Brazil, were examined for their radioactivity content using gamma-ray spectroscopy. At the Chrono-Environnement laboratory, the collected samples were dried at a temperature of 40 ◦C, ground and mixed to obtain a homogeneous mixture, and then were packed and sealed in cylindrical polyethylene containers of 50 cm3 (SG50) for four weeks before measuring, in order to assure the secular equilibrium between radium and thorium, and their progenies.

For qualitative identification as well as quantitativedetermination of the specific activity of gamma-emitting radionuclides present in tobacco samples, a high-resolution gamma-ray spectrometer equipped with a planar BEGe(Broad Energy Germanium) detector (Canberra, model BE3825) was used. The system has a relative efficiency of 20%and an energy resolution (FWHM) of 0.38 keV at 5.9 keV, 0.628 keV at 122 keV and 1.724 keV at 1332.5 keV.

The detector was connected to a Digital Signal Analyser (DSA-LX) Unit (16K channel signal analyser, V1.0) from Canberra. It is shielded with 15 cm of lead (including 2 cm made of archaeological lead) to reduce the contribution of environmental radioactivity to its background. The lead shielding was sur-rounded with an inner layer of copper (0.2 cm thick) to reduce the contribution from Pb X-rays. The control of the acquisition parameters and the analysis of the collected spectra are carried out using GENIE-2000 computer software .

The mixed gamma emitting CRM IAEA-447 (Certified Ref- erence Material) was used for the efficiency calibration of the detection system (Shakhashiro et al., 2012). It includes different radionuclides of the natural uranium and thorium series: 208Tl, 210Pb, 210Po, 212Pb, 214Pb, 214Bi, 226Ra, 228Ac, 234Th, 234U and 241Pu associated with 40K, 90Sr, 137Cs and 241Am radionuclides. The following radionuclides with their respective peaks were used to determine the experimental full-energy peak efficiency (FEPE) curve with energies in the range 45—2615 keV. Every prepared sample was counted for 24 h in the same counting geometry as the standard source. The activity concentrations of 226Ra (238U) and 232Th in each sample can be estimated indirectly, via several gamma-ray lines from their decay products under the assumption of secu- lar equilibrium. The gamma-ray lines at 295.2 keV (19.2%) and 351.9 keV (37.1%) from 214Pb, and 609.3 keV (46.1%), 1120.3 keV (15%) and 1764.5 keV (15.4%) from 214Bi were used to assess the 226Ra activities. Also, the 232Th activities were estimated using gamma-ray lines at 583.19 keV (86%) and 2614.51 keV (99.79%) from 208Tl, 338.4 keV (12%) and 911.2 keV (29%) from 228Ac and 238.6 keV (43.6%) from 212Pb (Amrani and Tahtat, 2001). The 40K activity was determined

by measurement of the single gamma line at 1460.8 keV(10.6%). The background counting due to naturally occur-ring radio nuclides in the environment around the detectorwas subtracted from the peak of each sample.

In the framework of Islamic Da'wah, a fine work by Mohammad Abul Kalam titled "Da'wah in the Non-Muslim Societies in Bangladesh in the Modern Era" illustrates several principles of successful preaching in Bangladesh. This article has discussed the significance and duty of Da'wah in non-Muslim society by introducing the spread of Islam in South Asia, particularly Bangladesh. In addition, it describes both conventional and contemporary da'wah techniques, with an emphasis on Bangladesh, and suggests unrestricted engagement between Muslims and non-Muslims. The modern methodology is needed to serve the Ummah, which includes the members of different religions in Bangladesh, according to the com-prehensive Da'wah strategy.In order to ensure that this academic work's message reaches a large number of non-Muslim native audiences, The purpose of "Challenges of Islamic Da'wah in Bangladesh: The Chris-tian Missions and Their Evangelization" is to compare the multifaceted preaching style of Christian missionaries in order to discuss the difficulties of Islamic Da'wah in Bangladesh. It also discusses the responsibilities of Bangladeshi Islamic Da'wah movements, which deal with fresh methods and creative solutions to the escalating problems faced by Christian mis-sionaries. In order to address the Da'wah

challenges and bring abouTThe purpose of "Challenges of Islamic Da'wah in Bangladesh: The Chris-tian Missions and Their Evangelization" is to compare the multifaceted preaching style of Christian missionaries in order to discuss the difficulties of Islamic Da'wah in Bangladesh. It also discusses the responsibilities of Bangladeshi Islamic Da'wah movements, which deal AbstractThe fact that people of different religions have the same rights and respect in performing important gov-ernmental duties from the very beginning of their lives is a glaring example of religious harmony in this nation.The fact that people of different reli-gions have the same rights and respect in performing important govern-mental duties from the very beginning of their lives is a glaring example of religious harmony in this nation. Because religion influences society in many different ways as one of its elements, the majority of people in Bang-ladesh are familiar with Islam. Several people have shared their views and opinions about the Da‘wahof Bangladesh in this section.

Foo, et al. discussed adverse skin reactions such as rashes, acne, and itching from mask use. It is the same with interviewed study by Agussalim in many workers in the groceries related to their acnes arisen in their face since last two years pandemic covid-19.The Center for Diseases Control (CDC), WHO, and the ministry of health of Indonesian Republic recommend wearing N95 masks during care of patients with highly transmissible diseases such as tuberculosis, SARS, and COVID-19. The N in N95 stands for NIOSH, the National Institute for Occupational Safety and Health of the United States and 95 indicates filter efficiency of particles. Thus, an N95 mask is 95% effective at filtering airborne particles including very small ones.

References

1. Based on the references we get, to preventthe side effects of using masks for a longperiod is: Masks must be disposable or mustbe washed every day if they must be usedmany times.

2.Disposable masks should not be worn formore than 8 hours per day. Fabrics that canbe used many times are those that are notmade of wool.

3.Any sneezing or cough mask should be openedand closed with tissue and then discharged tothe infectious site.

4.Every 2 hours wearing a mask, it must be opento breathe fresh air rich in oxygen so that thebody, especially the lungs gets fresh air.

5.The mask or hook should not be made of latexbecause it can trigger allergies to the face area.

6.Avoid wearing a tight mask when driving avehicle or exercising.