BWLAP/ABC3D на энергию 10 ГэВ и ток ~ 1÷3 мА, составят ~ 60×30×12 м, а К.П.Д. ~ 60%.

Преимущества ЯРТ-энергетики перед современными АЭС:

1. Глубокая подкритичность, что, в свою очередь, означает полную естественную безопасность.
2. Использование в качестве топлива для ЯРТ-реактора отвального урана, природного урана (^{238}U) или тория (^{232}Th), попутно перерабатывая отработанное топливо традиционных АЭС.
3. Периодичность перегрузок активной зоны составит не менее 15 лет.

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ELEMENTAL ANALYSIS OF INDOOR AEROSOL PARTICLES

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Mass concentration and the chemical characteristics of atmospheric aerosols were investigated in indoor air of Minia University. Berner and Sierra impactors are used as aerosol samplers with flow rates of 1.7 and 78 m^3/h respectively. The samples were analyzed for seven elements (Pb, Mn, Fe, Cu, K, Ca and Ba) using atomic absorption technique and twenty one elements using X-ray fluorescence spectrometry. Ca, S, Cl, Mg and Ba represent the highest percentages. Soil dust is the most ubiquitous sources of Ca, Fe, Al and Mg. The other elements are mainly from natural and traffic road.

Aerosol particles are responsible for carrying and transportation of radioactive and chemical elements, toxic gases and microorganisms [(1)]. So, its related human health impacts have become a major concern not only for researchers but also for governments and the general public [(2)]. The chemical composition of aerosol particles regulates the toxicity of any specific element. Effects of inhaled aerosols depend on the specific chemical species, the concentration, the duration of exposure, and the site of deposition within the respiratory tract. Particle size is the most important factor determines the location of the deposited particles. Since many people spend most of their time indoors, in locations, homes, offices and other occupational environments, concern regarding the health effects of indoor air quality has growth. Therefore, the objectives of this study are to examine the size distribution of aerosol particles as well as to investigate the elemental composition of aerosols in indoor air.

Low pressure Berner cascade Impactor was used as an aerosol sampler to determine the mass concentration and mass size distribution of atmospheric aerosols. The impactor contains eight size fractionating stages and operates at a flow rate of 1.7 m^3/h. Total particulate suspended matter has been sampled with high volume samplers (Sierra Impactor) operating at a flow of about 78 m^3/h . With knowing the impactor flow rate (Q) we can calculate the mass concentration(C) as in Eq (1) Atomic Absorption Spectroscopy and Wavelength Dispersive X-Ray Fluorescence were used for the elemental analysis of aerosol particles.

$$C = \frac{m}{Q.t} \ldots\ldots \mu g/m^3 \quad (1)$$

Mass size distributions of the investigated elements are bi-modal log normal size distribution according to the accumulation and coarse modes. The highest concentration is obtained for Fe (176.25 ng/m^3) followed by Mn (24.25 ng/m^3) and K (5.80 ng/m^3).

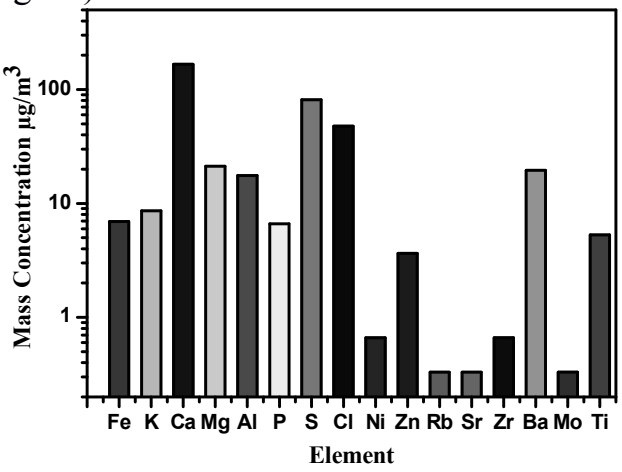

Figure (2): Mass concentration of elements in TSP collected by Sierra sampler.

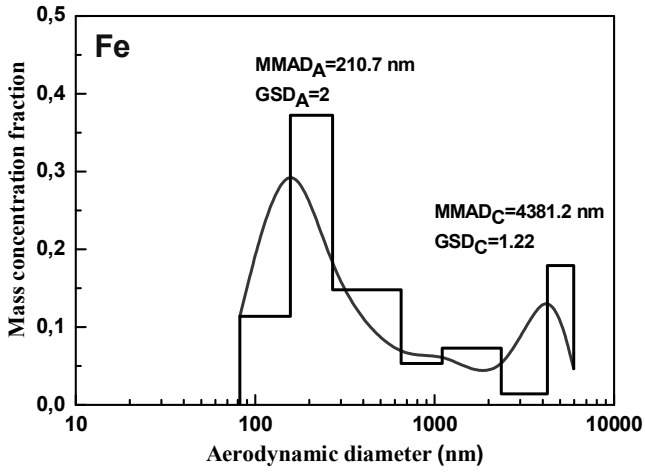

Figure (2): Mass ssize distribution of Fe .

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PROBLEMS OF METROLOGICAL SUPPORT RADON MEASUREMENTS

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Radon is known to be the major component of natural irradiation of the population in addition to several studies had shown that ^{222}Rn is the most important human radiological hazard [1]. Therefore, sensitive metrology of ^{222}Rn and its progeny is necessary to determine the behavior, exposure and biological effects of these nuclides