



## Agrochemical Properties Of Pomegranate Crops

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### ABSTRACT

Today it is impossible to imagine a person without a mobile phone; often people have not one, but several “mobile phones”. This work was carried out among students of a higher educational institution (Tashkent Medical Academy) and it was revealed that 100% of students had cell phones. This study examined the prevalence and use of cellular communications among students, the influence of electromagnetic fields emitted by mobile phones and other electronic devices on their health and sleep. The adverse effects of electromagnetic radiation from electronic devices have been identified

### Keywords:

Computer, electronic devices, cell phones, students, higher education institutions, electromagnetic fields, sleep.

**Relevance.** A properly organized work and rest schedule, balanced nutrition, and students' sleep play a major role in the life and maintenance of students' health [4-11, 14, 19-20]. But in recent decades, due to the development of cellular communications, exposure to electromagnetic fields from mobile phones and other devices that students use daily has increased [9, 16].

In recent years, electromagnetic fields created by cellular communications have become widespread, which is associated with the widespread mass use of mobile phones. Teenagers and children also use mobile phones. Electromagnetic fields (EMF) and the sources of electromagnetic radiation that create these fields have been known for a long time. To the existing electric and magnetic fields of the Earth, atmospheric electricity, radio emission from the Sun and the Galaxy, many electromagnetic fields of artificial origin have been added. Humans are mainly adapted to the action of natural electromagnetic radiation. But over the past decades, a lot of electromagnetic radiation of

anthropogenic origin has been added, and the total strength of electromagnetic fields significantly exceeds the natural background by about 1000 times [2, 4, 18].

Sources of electromagnetic radiation include high-voltage power lines, technical means of radio broadcasting, television, satellite communications, radar installations, radiotelephone transmitting stations, etc. In everyday life, a person is affected by electromagnetic fields created by electric transport, electrical household appliances and equipment (microwave ovens, heating equipment, personal computers, medical equipment, hair dryers, “warm floors”, etc.). And although the above has been present in our lives for many years, only in the last decade has the concept of “electromagnetic smog” become widespread, which is understood as the entire set of electromagnetic fields and radiation from various sources, which, when summed up, significantly affect the natural electromagnetic background of the Earth, the Galaxy, the Sun, often exceeding their levels [1, 3, 15-17].

Many scientists from around the world admit a high risk of exposure to the electromagnetic fields of mobile phones on the human body. The work of some researchers is devoted to the study of sleep disorders under the influence of electromagnetic fields of mobile communications [1, 3, 8, 12]. These works confirm that the influence of cell phones on the brain can cause headaches, fatigue, and insomnia. A number of authors believe that the increase in complaints of headaches is directly related to the use of cell phones [1, 13, 15]. Scientific works have made a very important conclusion: the number of complaints about headaches and increased fatigue depends on the duration of mobile calls during the day.

**Purpose of the study.** Studying the prevalence and use of cellular communications among students, the impact of EMF emitted by mobile phones on their health.

**Materials and methods of research.** A survey was conducted 202 students of the Tashkent Medical Academy. The questionnaire contained 28 questions with programmed answers. All content questions can be divided into 5 blocks: prevalence of mobile phones among students, features and modes of use of mobile phones, features and modes of use of personal computers, laptops (associated radiation),

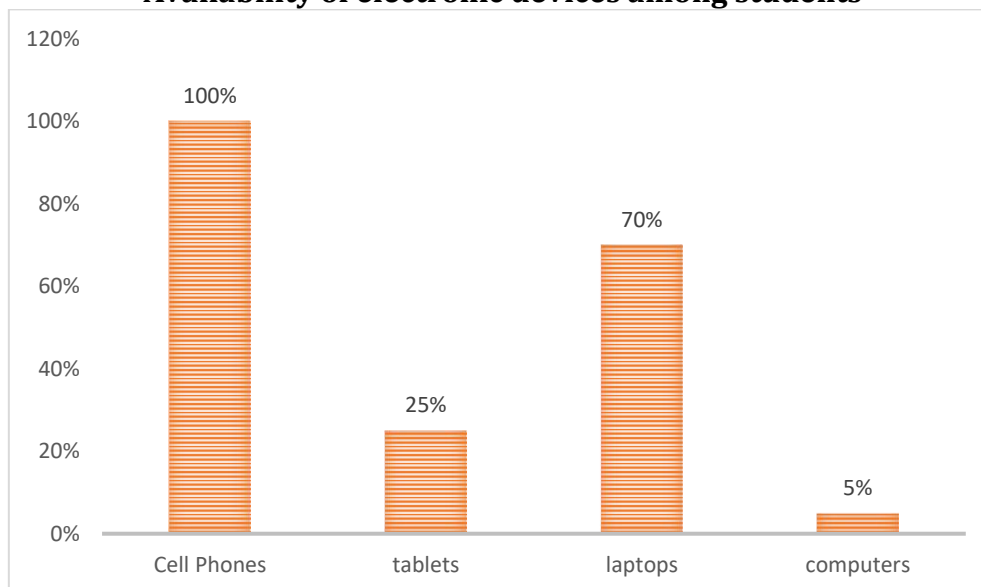
indicators of morbidity and functional state of the body of students, daily routine and sleep. Next, statistical processing of the data was carried out.

**Research results.** The prevalence of mobile phone users among students at the Tashkent Medical Academy is very high and amounts to 100%, while 100% of students participating in the survey also have personal phones.

The most common way to carry mobile phones is in the pockets of the 2nd layer of clothing, accounting for 82%, and only 18% of students carry a mobile phone in a briefcase, bag, or backpack. From a hygienic point of view, carrying a phone on the chest and in pockets is a risk factor for cellular users.

When studying the gender specifics of using mobile phones, a significant difference was revealed between boys and girls in the number of conversations on a mobile phone and in the total talking time per day. Thus, it has been established that girls talk on the phone 1.4-2 times more than boys. The total number of minutes per day of telephone conversations averaged 40-60 minutes for male students, and up to two hours per day for female students (Fig. 2). 70% of the students surveyed use laptops, 25% use tablets, 10% use netbooks, and 5% of students use desktop computers (Fig. 1).

**Figure 1.**  
**Availability of electronic devices among students**

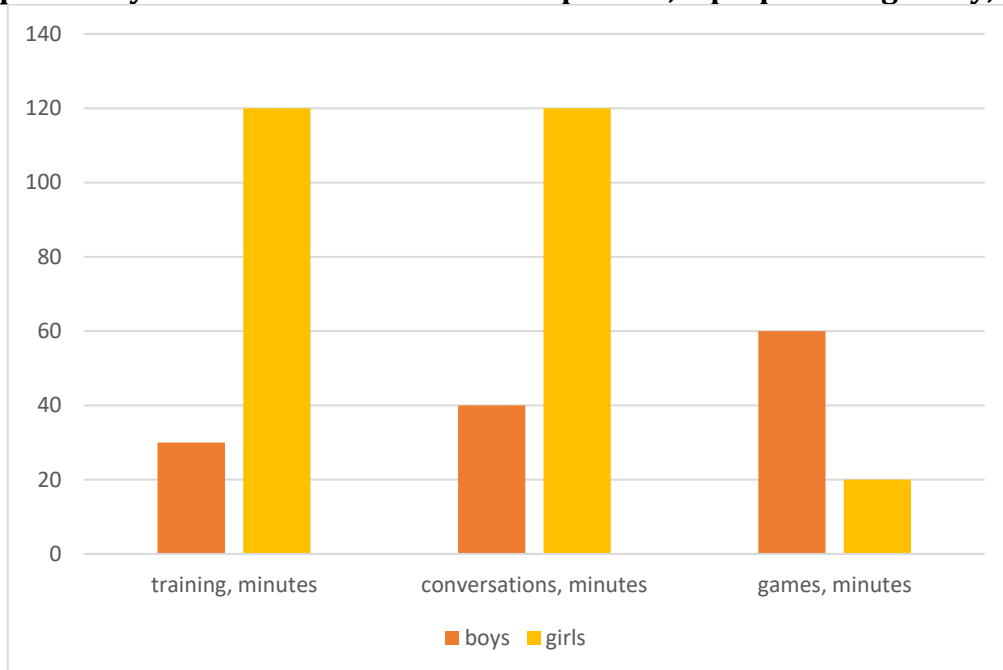


In addition to directly using cell phones (conversations), students often spend their time on social networks and on various sites. Every

day an average of 1-1.5 hours is spent on youtube, tik-tok, 2-2.5 hours on social networks (telegram, Instagram and others), studying

(reading books, studying articles, searching for material, etc. ) – 2 hours, for entertainment (games) – 20 minutes for girls.

**Figure 2.**  
**Time spent daily on various activities on cell phones, laptops during study, minutes**



Boys spend an average of 2 hours on youtube, tik-tok, 2.5 hours on social networks (telegram, Instagram and others), learning (reading books, studying articles, searching for material, etc.) - 30 minutes, for entertainment (games) – 1 hour per day. At the same time, a big difference is observed in the time spent on studying using cell phones, laptops are 75% more for girls than for boys, and for games - 66% more for boys than for girls (Fig. 2). All of this activity often takes place on cell phones, and only 10-15% of this time can be spent on a laptop, tablet or computer.

With all the variety of cell phone uses, there are slight variations in use during school and during the holidays. During the holidays, most of the time spent, which was allocated during school for learning (reading books, studying articles, searching for material, etc.), goes to fun. Also, due to the emergence of more free time during the holidays, the time spent using phones increases by an average of 10% for both boys and girls.

The conducted studies made it possible to identify the cumulative effect of the negative impact of mobile phones depending on the experience of using cellular communications. A

study of indicators characterizing the state of health among students with 4-5 years of experience, 6-7 and 8-9 years of experience revealed a deterioration in indicators with increasing experience of using the telephone. Thus, the frequency of headaches increased by 3.4% with an experience of 6-7 years compared to 4-5 years of experience. Difficulties falling asleep were detected 2.6% more often in the group with 8-9 years of experience compared to the group with 6-7 years of experience. Most often, students fall asleep in close proximity to cell phones. The most significant deterioration was evident in the number of diseases per year with increasing temperature. The incidence of diseases increased by almost 6%.

**Conclusion.** Complex and long-term exposure to a mobile phone and computer load has an adverse effect on the health and sleep of students.

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