A New System Combined with a Smart Phone Application for On-Site Doping Analysis: Mobil-Dopsens

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Today, sport activities have become very important on human. The most significant measure of sport arising from competitive and rivalling instincts and motivations of human being is the performance. The primary aims are improve the power and winning in any case. This instinct has been increased in such a way that economic and social outcomes of sportive success lead to violation of ethical norms and health rules. Doping is determined as “the conscious or unconscious use of banned substances or methods by the player” for enhancing physical and mental performance during the competition. Doping results in unfair competition and deteriorates the health of players. In the meantime, use of these banned substances causes to deaths. Also, use of these compounds violates sport ethics. The aim of project is the design of a test kit that enables on-site analysis of doping substances. The most important novelty and advantage of the developed system lies at the measurement of test signals depended on the use of mobile phone. This feature is the first ever among other doping analyses and many test kits. We have named our test system as “Mobil-DopSENS” since integrates with mobile phones. Two strong and widely used stimulant substances, “methamphetamine and cocaine”, banned by WADA, have been selected as model doping agents and a test kit have been designed for these compounds. It’s also specific signal agents were used to give different colours. Test signals for the presence of methamphetamine and cocaine were green and red colours, respectively. The generated fluorescence signals were detected as colour intensity with a mobile phone app. It is worthy to note that mobile app have been used in a doping test for the first time in this project.

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