**Influence of Alchemy on Modern Chemistry**

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**ABSTRACT**

This paper is intended to understand the “Influence of Alchemy on Modern Chemistry”. Alchemy played an vital role in the development of modern chemistry, The refining of ores and the production of gunpowder are the work led by alchemists. The goal of alchemy was to find a mythical and magical substance called ‘Philosopher’s Stone” not a literal stone but wax , liquid or powder with magical power, which on heating with a base iron and copper metals would turn into gold. The present paper clarifies that, Alchemy contributed to a huge part to Modern Chemistry with alchemist heart, They had theories about the nature of metals that made them believe they could manipulate their structure, which similar to the building blocks we known as atoms today.

**KEYWORDS:** Alchemy, Alchemist, Philosopher’s stone, Gunpowder

**Introduction :**

 **ISSAC NEWTON**  would not have said he was a scientist, but he would have said he was an alchemist, or someone who practiced alchemy. In fact, it was not until 1833 that people began calling themselves “scientists”.Around **300 BC** ancient Greek philosophers came up with a concept how to physically manipulate the properties of different substances. From that time period all the way up until the late 18th century, this practice was known as Alchemy, which is considered the building block to what we now consider as Modern Chemistry.

Alchemists laid the groundwork for many chemical processes, such as the refining of ores, the production of gunpowder, the manufacture of glass and ceramics, leather tanning, and the production of inks, dyes, and paints. Alchemists also made the first attempts at organizing and classifying substances so that they could better understand their reactions and be able to predict the products of their experiments. This eventually led to the modern periodic table, which you will learn about in a later chapter. Alchemy began to fully evolve into chemistry in the 17th century, with a greater emphasis on rational thought and experimentation and less emphasis on spirituality and mysticism.

**Influence of Alchemy on Modern Chemistry**

1. **Philosopher’s Stone**

 a mythical substance supposed to change any metal into gold or silver and, according to some, to curealldiseases and prolong life indefinitely. Its discovery was the supreme object of alchemy.

 To achieve transmutation, it was first necessary to prepare the transmutating agent—the Philosophers’ Stone—itself. According to most alchemists, it should have taken the form of a powder of various colors, hence the name elixir, According to alchemist, Philosopher’s Ston was the magical substance which increases the life span of human beings and on the basis of that, Todays chemist prepare drugs and both the terms Philosopher’s stone and drugs prepared in pharmaceutical industries considered as elixier of life

1. **Alchemy and Modern Medicines**

 The process of mixing chemicals and substances together to create potions or drugs is alchemy or **pharmaceutical development**. Some modern medicines are mainly derived from some natural plant or root and then altered in some way by adding other agents to it and mixing them together to create a liquid, pill, or inhalant.

Alchemist believed that the Philosopher’s stone was transmuting base metals into precious ones thereby they invented the medicine, one of the celebrated alchemical medicines was Aurum potabile(drinkable gold) , indirect evidence of its use at the French court was provided by analysis of the hair of Diane de Poitiers (9 January 1500 – 25 April 1566) was a French noblewoman and prominent courtier. Using inductively coupled plasmamass spectrometry, a gold concentration about 500 times the natural reference values was determined in samples of Diane’s hair, her hair has a diameter of about 25% thinner than normal hair. Hair thinning is a symptom of chronic gold intoxication. Historical records prove that Diane underwent a long course of gold treatment in the hope that it would be an elixir of youth. This evidence indicates that she could have died of chronic gold intoxication.

1. **Alchemical Laboratories and Nowadays chemistry Labs**

 Alchemy and Alchemist gave base and pillers to the Modern chemistry. In the excavation of alchemist laboratory of sixteenth centuary, carrie out in 1980 and 1994 at lower Austria in that more than 1000 objects were found including Flasks various metal objects, charcoal, remains of leather and textiles.. In 2018, Veronesi and Martinón-Torres [1] investigated the provenance of 34glass fragments of distillation equipment from the laboratory. The chemical composition was analyzed using scanning electron microscopy with energy-dispersive X-ray spectroscopy. The fragments were separated into sodium-rich, colorless distillation vessels made with glass from Venice or its European imitation, and potassium-rich dark-brown non-specialized forms produced within the technological tradition of forest glass typical for central and north-western Europe. X-ray dif fraction analyses of some of the other glass vessels showed that the then-popular iatrochemical preparations (specifically antimony trichloride and calomel, Hg2Cl2) were prepared in this laboratory [2-4].

**4. Alchemy affected to the Alchemist body**

 Nowdays laboratories are more adhered by the safety measures In that, It is ensured that , the chemist will obey all the safety rules and such a safety equipments, facilities are provided but when we gain knowledge about the history of alchemy will understand that , Alchemist worked in their laboratories without todays protective equipment. Although it is a very unusual method, there are a few examples of such analyses in the literature. Probably, the most famous is the case of one of the great est and most influential scientists of all time, Sir Isaac New ton (1642–1726). In the fall of 1696, Newton was suffering from sleeplessness, digestive upsets, loss of memory, and some delusions. Some authors look for the cause of this condition in mercury vapor poisoning. Using neutron activation analysis and atomic absorption spectrophotometry, Spargo and Pounds [5] measured the amounts of certain elements in three different samples of Newton’s desiccated hair. The results showed high values for chlorine, mercury, gold, arsenic, antimony, and lead. The authors concluded that Newton’s poisoning by mercury and lead may explain his health problems. Recently, in his scholarly monograph Newton the Alchemist [6], Newman criticized these results and pointed out that the hair samples were collected on New ton’s death in 1727. This means that more than 34 years would have elapsed since his problems in 1693, so the hair samples could hardly reflect Newton’s physical constitution at the time of his illness

**Conclusion**

Alchemists thus made a significant contribution to the development of Modern Chemistry, which, however, resulted in the destruction of their ideas. However, as this review shows, Modern Chemistry, It gives base to the nowdays laboratories, for the Pharmaceutical Industry Alchemy gives various predictions and theories Modern chemistry is adhered with such a alchemical theories which have become a legacy for chemistry, and in fact for all of us.

**References**

1. Szabadváry F (1966) History of analytical chemistry. Pergamon Press, Oxford

2. The Chymistry of Isaac Newton. www. chymistry. org. Accessed 8 May 2021

3. von Osten S (1998) Das Alchemistenlahoratorium von Oberstockstall. EinFundkomplex des 16.JahrhundertsausNiederösteireich.Universitätsverlag Wagner, Innsbruck

4. Soukup RW, Mayer H (1997) Alchemistisches Gold, ParacelsistischePharmaka: Laboratoriumstechnikim16. Jahrhundert.Böhlau, Wien

5. Spargo PE, Pounds CA (1979) Notes Rec R SocLond 34:11

6. Newman WR (2019) Newton the alchemist: science, enigma, and the quest for nature’s “secret fire.” Princeton University Press, Princeton

According to most alchemists, it should have taken the form of a powder of various colors, hence the name elixir, a word formed by an inaccurate Arabic transcription of the Greek noun ξηρίον (powder) as ksr, sup plemented by the Arabic definite article al − , and then an –i– to aid pronunciation. An alternative name was tinctura, a term derived from the Latin verb tingere (to wet, to dye). The term refers to the beginnings of alchemical practice when a change in the composition of substance was proved only by a change of its color. Although in current usage, “tincture” refers more to a colored liquid, in the alchemicalcontext, it usually means a solid (on the other hand, some historical alchemical texts supposed liquid Philosopher’s stone). The Philosophers’ Stone was eagerly sought by throngs of alchemists, who left a plethora of more or less intelligible recipes for its alleged preparation (needless to say, none of them proved successful). Very rarely, the material remains of alleged Philosophers’ Stone have been preserved, two of which have been analyzed

The excavation of the remains of an alchemical laboratory from the second half of the sixteenth century, carried out in 1980 and 1994 at Castle Oberstockstall in the village of Kirchberg in Lower Austria, is exceptional in its scope [2-4] More than 1000 objects were found, including cru cibles, clay cupels, ceramic aludels, retorts, glass alembics, phiols, flasks, various metal objects, charcoal, minerals, remains of leather and textiles, and bones. Dendrochrono logical analysis of the charcoal remains indicated the laboratory was in use between 1575 and 1586. 0Using inductively coupled plasma-mass spectrometry, the analysis of some of the vessels revealed that the chemical composition of the metallic remains in them. The high content of bismuth in two of the ash cupels was striking. In addition, evidence was found that the alchemist performed separations of gold with the help of stibnite (Sb2S3) in very special skillets and that he distilled off mercury from its amalgams. The finding of a golden alloy of silver and copper inside one of the crucibles leads to the hypothesis that there were attempts to artificially produce precious metals at the Oberstockstalllaboratory. The other analyses also focused on the composition of the laboratory instruments and linked the results to contemporary alchemical practice

The analysis of the bodily remains of alchemists may seem be a rather unusual way to gain knowledge about the history of alchemy. Alchemists worked in their laboratories without today’s protective equipment and did not adhere to modern day principles of occupational safety. Therefore, they were more exposed to chemicals. As a result, higher amounts of chemicals are detectable in the bodily remains of a particular alchemist than in the “normal” population