Available online at www.ijapas.org

International Journal of Applied Arts Studies

IJAPAS 6(3) (2021) 39–46

Designing Doll Costume Inspired by "Simorgh" and using the Properties of Harmel and Nano Zinc Oxide

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Received 12 August 2021; revised 24 August 2021; accepted 28 November 2021

Research Article

Abstract

The prevalence of various diseases caused by pathogenic bacteria and their resistance to antibiotics has forced researchers to search for healthy and safe methods to produce products suitable for human well-being with the advent of nanotechnology in the present century, nanomaterials such as silver, gold, zinc, copper and titanium dioxide are used as antimicrobial agents. In this study, the antimicrobial efficacy of cotton samples in in reducing two common strains of Gram-positive Staphylococcus aureus, source of eye, skin, bone and joint infections and Gram-negative Escherichia coli, origin of urinary tract infections, nosocomial and blood infections using zinc nanoparticles and harmaline, has been examined for use in children's doll clothes. Small amounts of antimicrobial test of the samples indicate that in the treated samples the average percentage of bacterial reduction for Gram-positive bacterium Staphylococcus aureus was %96 and Gram-negative Escherichia coli %99. Also, in the doll costume design section, an attempt has been made to be inspired by one of the mythological symbols of Iran (Simorgh)and the designs should be based on it. The research method in this article is descriptive based on the nature, because; there was no intrusion into the information obtained and the results were reported realistically. This research is based on the experimental method, because; a laboratory process is required to prepare the fabric with the desired properties.

Keywords: Hamaline; Fabric Design; Costume Design; Doll

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1. Introduction

Although the puppet is a branch of art and theater, in fact the puppet has all the sciences in it. It includes sciences such as philosophy, metaphysics, hermeneutics, anthropology, archeology, sociology, psychological arts, music and especially visual arts. The puppet is a "silent person "who is enlivened by a "moving person "who has a sympathetic mind (Georgian,2016: 75). Empty your psyche. The child trusts his doll so much and sees himself as him, attributing all his feelings and emotions to the doll. This not only causes mental exhaustion, but also leads toa better understanding of him. Then the doll allows the child to grow up without fear of adults and to experience a number of issues out of curiosity (Tehran, 2018).

Children usually start having activities with dolls between the ages of two and three. So that if you see a doll, they have the ability to communicate with it. They may do things with dolls, such as; feed the doll, bathe the doll and then place the doll in bed. These types of games represent an important part of their cognitive development. Because of this great connection, the mental and physical health of the child is very important.

The first doll was invented in the pre-Milad period, so it is difficult for historians to go back to an inventor, but in modern times, Ruth handler invented the first doll in 1959 (2019, Milan). Germany and France Early in the production of European dolls, a mixture of paper, sawdust, plaster and glue was made as a cheap alternative to wood, which could be formed under pressure and enabled mass production of dolls.

After wood, a kind of synthetic cellulose was discovered around 1870, which has been used to make dolls since the late 19th century, this material became brittle and flammable with the age of the doll, but due to its low price, it was used for some time in factories in Germany, France, USA and Japan for mass production of dolls. From the second half of the twentieth century, more durable materials. After 1870, kalehgis and glass eyes became popular for dolls. From the begging of 1880, some manufacturers began to produce dolls that could close their eyes.

It was the golden age of doll production from 1860 to 1890 when the demand for dols increased and new and delicate types were constantly produced. Many of the dolls produced at this time were mechanical and had the ability to move, sing and dance (Madehow, 2020).

Given the importance of toys in the developmental process of the child and the need for its health and safety, attention to the quantity and quality of production, distribution and use of toys in the country is necessary. the attitude that toys are just a luxury item should be changed. Creating a new thinking in the toy industry, in order to improve the safety level of domestic products and prevent the import of unsafe toys, will reduce accidents caused by the use of this educational and entertaining device in children (Ibid, 2010: 84).

Doll manufacturers usually design a doll from the original design to the final product, which includes face design and swing, etc., up to packaging. First, a linear etude of the mental design is presented and then a color image of that designer is created. then a model of that design is sculpted with wax. After the design of the sculpture was approved, a sample of it will be made as a production mold (Madehow, 2020).

The important point in toy design is that the child should be able to easily use his toys, touch them and make changes in them if he wishes. Also, the toy should be in harmony with other items in the child's environment; so that the with his real life (Ibid, 2019: 137).

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prevent the import of unsafe toys, will reduce accidents caused by the use of this educational and entertaining device in children (Ibid, 2010: 84).

One of the medicinal plants; the plant Esfand or Espand, scientifically name harmala Pergamum from the family Zygophyllaceous (Zygophyllaceous), has about 22 genera and more than 250 species (Asgarpanah, and Ramezanloo, 2012: 1573).

It is a magnificent perennial plant that grows spontaneously in arid, steppe and sandy soils, native to the eastern Mediterranean. It is a 3.0-8.0 m tall shrub with short creeping roots, white flowers with green veins and round seed capsules that has more than 50 seeds. this plant contains beta-carboline alkaloids, such as harmalol, harmaline and hemin (Moloudizargari, 2013: 199).

Studies have shown that the two most important alkaloids of pecan, namely harming and harmaline, are found in seeds and roots and are present in small amounts in pecan flowers.

Table 1 Pecan Alkaloids (Rural, 2018: 75)

Pecan alkaloids	Seed	Flower	Leaves	Stem	Root
Harman alkaloids (harmane)	+	–	–	–	+
Harmaline Dehydroamino	+	–	–	+	+
Quinazoline Derivative, de Vasicine (Pegamine)	+	+	–	+	–
2,3 trim ethylene & 4 quinazoline	–	–	–	–	–
1, 2, 3 – Hydroxytrimethlene Quinazoline (Harmalol)	+	–	–	+	–
Ajmalicine B carboline	+	–	–	–	–
Harmaline	+	–	–	–	–
Pegamine	+	–	+	+	+
Vaccines	+	–	+	+	+

Harmaline is an alkaloid found in harmala fruit. P and is not present in its flowers (Iranshahy, 2019: 535). Esfand spherical fruit has a large number of brown or black seeds and prismatic shape and has a penetrating odor and very bitter taste and is used as a general disinfectant) (Ishraqi et al, 2009, 63).

Hamadan (C13H150N2) was first isolated by gobble from the seeds and roots of harmala either is slightly soluble in hot alcohol and completely dilute in acids. Harmaline is almost twice as toxic as harming (Mahmoudian et al. 2002: 2).

Harmaline has pharmacological toxic, fungicidal and bactericidal effects (Zeila et al, 2015: 28). Medical plants in important civilizations of the world, such as ancient Iran, Egypt, the Middle East, ancient Greece, India and China date back to 3000 BC.

In Egypt, for example, the pecan plant is used to treat infectious diseases and is used as a powerful microbicide (ibid, 2018: 74). The use of this plant is different in different countries; Alkaloids derived from harmala seeds. P In traditional medicine in some parts of the world, it has been used as an antifungal and disinfectant. In Saudi Arabia, for example, the use of this plant against fungal infections has been common (Moloudizargari, 2013: 206). this purifying property of Pecan seeds is used in Uzbekistan and Turkey (Ibid, 2013: 201).

Today, toys are not just a means of entertaining children and have found different functions in the social, physical, cognitive and emotional areas of the child. Among the toys, the doll is one of the most useful toys among children, which in fact can be said that the child lives with it. For this reason, paying attention to the child's health when using the doll is very important for the child's parents. In this article, clothes are designed that are creative in terms of design and are appropriate for Iranian culture. On the other hand, the fabrics used in the clothes of these dolls are hygienically upgraded with the natural material available in Espand and strengthened with other materials, and help maintain the health of the child.

2. Materials and Methods

To prepare the fabric, harmaline and nanomaterials (Table 2) were added to the human and enough distilled water was poured on it until the human volume reached 100 ml. the human was then placed in an ultrasonic bath for 10 minutes.

At this stage, a 100% cotton cloths were added to the human and the human was placed in an ultrasonic bath at 50°C for 40 minutes. The cloth was then washed and dried for 20 minutes at 80°C.

Table 2 Specifications of materials used

Characteristic	Name of manufacturer	Name of the material
1314131	Sigma Aldrich	ZnO
304212	Sigma Aldrich	Harmaline

3. Discussion and Results

3.1. Investigation of Antibacterial Activity

Quantitative evaluation of antimicrobial activity of completed fabrics against Gram-positive Staphylococcus aureus (25923 ATCC) and Gram-negative Escherichia coli (25922 ATCC) according to AATCC standard method 2004-100. In this method, samples in 10% dimensions 10 mm was placed next to a half-McFarland-based bacterial suspension, followed by 100 Ul of agar soy Tryptic in the culture medium for 24h and then for quantitative microbial analysis. they were placed in a plate culture method. For bacterial growth, the culture media were kept in an incubator at 37 with C for 24h. At the end, the number of bacterial colonies in each container was counted and the percentage of bacterial reduction was calculated. completed with the materials in Figure 1, as well as the small amounts of antimicrobial test of the samples indicate that the raw fabrics have no microbial properties and in the treated samples the average percentage of bacterial reduction for Gram-positive Staphylococcus aureus is 96% and Gram-negative Escherichia coli. 99% is calculated. so, use e Nanomaterials facilitate the breakdown of bacteria. The decomposition of bacteria by the desired materials can be done by destroying the membrane, well and enzymes of bacteria.

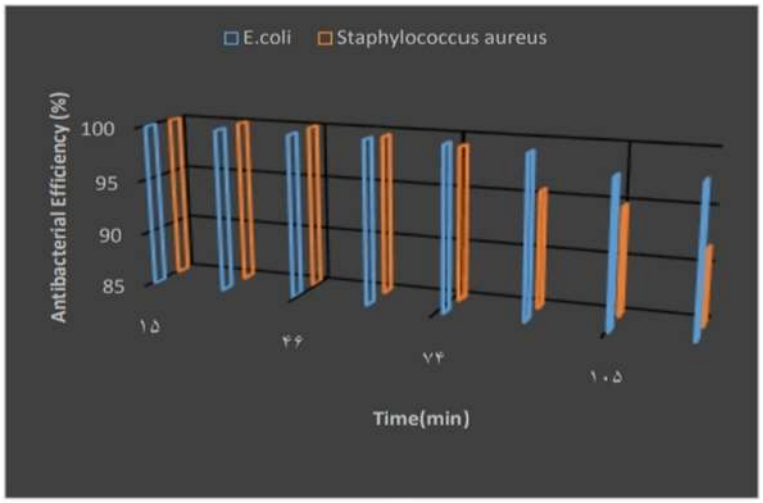

Fig 1 Antibacterial diagram of samples

3.2. Clothing Design Department

The basis of the designs presented in this article is the idea taken from Farshchian Master Simorgh miniature painting, which has symbols and features such as; Narrow neck, curved lines, dalber-like texture on the wings, many arches on the body of Simorgh, many feathers and a layer with wavy and Brocken lines on the edge of Simorgh wings have been conceived in the design of clothes.

Fig 2 Simorgh miniature painting

Simorgh or Sirang is the name of the mythical birds that raised Rostam's father. there is a lot of talk about Simorgh, but the issue that everyone agrees on is that; this chicken in the world, there is a name but there is no sign of it and such birds cannot be hunted. In Arabic, Simorgh is called Angha because they believed that it was a long-necked bird with colorful feathers in the land of the Companions, which lived on a very Hight mountain peak. (Naira, 2006: 216).

Simorgh is one of the most prolific symbols of philosophy, literature and mystical wisdom, which has a special place both in the world of mythology and in the field of revelation, intuition and enlightenment (Ibid, 2006: 231).

In the field of clothing design, using software designer marvelous, three-dimensional and color design of them.

Fig 3 Designs implemented with marvelous software

The basis of the etudes presented in this article is the idea taken from Farshchian Master Simorgh miniature painting, which has symbols miniature painting, which has symbols and features such as; Narrow neck, curved lines, dalberi texture on the wings, many arches on the body of Simorgh, abundant feathers and a floor with wavy and broken lines on the edges of the wings, have been conceived objectively and conceptually in the design of the clothes.

In the conceptual part , the designs are done as follows ; Puffy and pleated sleeves (association of volume created by overlapping wings), multi-layered skirts (inspired by the stratification of Simorgh feathers), cloche sleeves and skirts (take on a soft and special curved shape when worn and show softness Curvature, body of Simorgh), rabbit collar (in addition to being widely used in children's clothes , sharp and long collar, indicating long and sharp wings of Simorgh), use of curved lines in cuts (according to the characteristics of these lines, a better choice for children's and doll designs).

4. Conclusion

The results showed that; Cotton cloth impregnated and supplemented with 2 substances (ZnO) and harmaline have a significant percentage of bacterial reduction, so that the average bacteria are %96 and against Gram-negative bacteria is %99 calculated and confirmed.

In this article, for a fabric designed with this special feature of resistance against two common types of bacteria, 5 clothing designs were presented with an idea from the Iranian mythological element (Simorgh) to a design in accordance with Iranian culture and a step was taken to preserve this culture.

Since the child needs play to grow and learn, and given that most of the activities of childhood play, two important criteria of the standard or physical and mental health should be considered in choosing toys. the fabrics and clothes designed in this study were aimed at considering the two dimensions of mental and physical health of the natural needs of the child.

Due to the fact that toys are one of the effective factors in the development and learning of children and the child due to his young age and weak body, is exposed to many dangers both physically and mentally. that is why the standard of the toy is so important. In addition to physical health, a suitable toy should provide general and external structure (and mental health) and internal reflection. Because the child communicates a lot with his doll and actually lives with it, so that in his dream he cares about feeding the doll or even takes it to the bathroom and most of the time he has it with him and even he takes it with him to bed and due to this high tactile connection, it is suggested that the results of our research be used in the design of fabrics and the design of doll clothes.

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