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Medicinal Plant Used in Management of Mouth Ulcer: A Review

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Abstract: ***Mouth ulcer is a common oral condition that may be associated with local trauma, aphthous stomatitis and other factors. Herbal medicines have been traditionally used for the management of oral disorders because many medicinal plants contain bioactive constituents with reported antimicrobial, anti-inflammatory, antioxidant and wound-healing properties. This review summarizes medicinal plants reported for the management of mouth ulcer and discusses their traditional or experimental use in herbal formulations. Plants such as Aloe barbadensis, Psidium guajava, Glycyrrhiza glabra ,Curcuma longa, Punica granatum, Piper betle, Cordia dichotoma, Capsicum annuum and Morinda citrifolia have been reported in the literature. Herbal gels and other preparations containing these plants have also been investigated. The available literature provides a basis for further research and formulation development; however,evidence varies among individual plants and many reports are experimental rather than clinical.***

The two most causes are aphthous stomatitis, alsoknown as canker soreness, and local injury or trauma, such as rubbing agains t a tooth or dental filling's sharp edge. Aphthous stomatitis causes mouth ulcers to occur repeatedly, and its exact cause is often not known.

Keywords: Mouth ulcer, Medicinal plant, Anti-inflammatory activity, Wound healing,

I. INTRODUCTION

A mouth ulcer, also called an oral ulcer or mucosal ulcer, is a sore that develops on the inner lining of the mouth. it usually appears as a painful, phthous stomatitis (canker sores) and local injuries are the two most frequent causes of mouth ulcers. Local injury can occur when the mouth repeatedly rubs against a sharp edge of a tooth or dental filling. Aphthous stomatitis is a condition in which mouth ulcers develop repeatedly in the throat.These consist of regional trauma, genetic influences, lack of nutrients, viral or bacterial diseases, and issues associated with the immune system or endocrine system.In some people, the exact cause of repeated mouth ulcers cannot be identified. These cases are called recurrent aphthous stomatitis (RAS).

There are three main types of mouth ulcer:

1) Minor Mouth Ulcer

Minor mouth ulcers are usually small,diameter is 2-8mm. It is superficial and painful. Most minor ulcers heal within 1–2 weeks and generally do not leave scars.



Figure 1: Minor mouth ulcer

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2) Major Mouth Ulcer

Major mouth ulcers are larger and deeper than minors. They often measure over 10mm in diameters.They have irregular edges and Can take week or month to heal.



Figure 2: Major mouth ulcer

3) Herpetiform Mouth Ulcer

Herpetiform ulcers are the third type of recurrent mouth ulcer.These ulcers can occur in large numbers, usually 10–100 ulcers at a time. The small ulcers may join together and form larger ulcers or plaques.



Figure 3: Herpetiform mouth ulcer

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II. CAUSES OF MOUTH ULCER

Mouth ulcers can occur due to many reasons, such as:

1) Minor injury in the mouth, for example, during dental treatment like filling a cavity.
2) Accidentally biting the cheek or tongue.
3) Allergic reactions to certain bacteria or substances.
4) Wearing braces or retainers, which may irritate the mouth.
5) Using strong or abrasive toothpaste, which can irritate the mouth.
6) Eating too many acidic foods, such as oranges, pineapples, and strawberries.

III. ADVANTAGES OF HERBAL MEDICINES

1) Improves immunity: Herbal medicines may help strengthen the immune system and support the body in fighting diseases and recovering from illness.
2) Improves digestion: Some herbal medicines can help improve digestion and support a healthy digestive system.
3) Reduces stress and anxiety: Some herbs may help reduce stress and anxiety by supporting the body's natural response to stress.
4) Natural pain relief: Some herbs have anti-inflammatory and antioxidant properties.They decrease inflammation ,pain and can be used as a natural way to manage pain.

IV. DISADVANTAGES OF HERBAL MEDICINES

1) Contamination: Medicinal herbs may become contaminated with pesticides, heavy metals, bacteria, or other harmful substances. This can be harmful to health.
2) Uncertain effectiveness: Some herbs may be useful for certain health problems, but many herbs have not been studied enough. Therefore, their effectiveness may not be fully known.
3) Possible health risks: Some herbal medicines may cause allergic reactions or side effects. They may also interact with certain medicines.
4) Incorrect use and dosage: Herbal medicines are often taken without proper medical advice. The correct dose and safety information may not always be known. Taking herbal medicines together with other medicines may cause harmful interactions.

V. HERBAL DRUGS FOR MOUTH ULCER

Herbal Remedies	Scientific Name	Portion
Turmeric	Curcuma longa	Rhizomes
Guva Leaves	Psidium guajava	Leaves
Tulsi	OcimumTenuiforum	Leaves
Ginger	Zingiber officinale	Ginger extract
Liquorice	Glycyrrhiza glabra L.	Stem,Root
Aloe vera	Aloe barbadensis mil	Stem, Root
Papaya	Carica papaya	Bark, Leaves
Neem	Azadirachta indica,	Leaves
Myrrh	African bdellium	Extract
Tamarind	Tamarindus indica	Seed,Leaves
Coconut	Cocus nucifera	Coconut kernel
Garlic	Allium sativum	Leaves, Flowers
Pomegranate	Punica grantum	Seed,Leaves
Hibiscus	Rosa-sinensis	Flowers, Leaves
Sega Leaves	Saliva officinalis	Leaves

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VI. DESCRIPTION OF MEDICINAL PLANT

1) Turmeric



Figure 4: Turmeric

Botanical Name: Curcuma longa L
Family: Zingiberaceae
Biological source: Turmeric is obtained from the dried rhizomes and roots of Curcuma longa Linn.

Macroscopic Characters
- Colour: Bright yellow
- Odour: Earthy and mustard-like
- Taste: Earthy, slightly bitter, and mildly peppery
- Size: Length – about 41.2 mm; diameter – about 9.3 mm
- Shape: Cylindrical

Chemical Constituent
- Curcuminoids. -Diterpene
-Triterpenoids. -Alkaloids
-Sterols. -Monoterpenes

Uses
- Reducing inflammation and irritation
- Supporting eye health
- Managing metabolic disorders
- Managing high cholesterol levels
- Reducing anxiety
- Supporting the management of arthritis

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2) Guva Leaves



Figure 6: Guva Leaves

Botanical name: Psidium guajava
Family: Myrtaceae
Biological source: Guava leaves are obtained from the plant Psidium guajava.

Macroscopic characters:
Color: Dark green
Odor: Aromatic
Taste: Slightly bitter
Size: About 7.6 cm (3 inches) long
Shape: Elliptical or oval

Chemical constituents:
Guava leaves contain vitamin A, vitamin C, iron, phosphorus, calcium, flavonoids, guaijavarin, quercetin, oleanolic acid, saponins, α-pinene, limonene, and β-pinene.

Uses:
-Guava leaves may help to:
-Improve immunity.
-Help control blood sugar levels.
-Support heart health.
-Relieve constipation.
-Improve eye health.
-Reduce stress.
-Provide health benefits during pregnancy.
-Support overall health.

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3) Tulsi



Figure 7: Tulasi

Botanical name: Ocimum tenuiflorum
Family: Lamiaceae
Biological source: Tulsi is obtained from the fresh or dried leaves of Ocimum species such as Ocimum sanctum L. and Ocimum basilicum L.

Macroscopic characters:
Color: Leaves are green or purple.
Odor: Clove-like smell.
Taste: Astringent and sometimes slightly bitter.
Size: The plant is about 1–2 feet tall, and the leaves are about 1–2 inches long.
Shape: Leaves are oval-shaped with a pointed tip and slightly toothed edges.

Chemical constituents:
Tulsi contains cirsilineol, circimaritin, isothymusin, apigenin, rosmarinic acid, eugenol, euginal, ursolic acid, carvacrol, linalool, limatrol, and caryophyllene.

Uses:
-Treat oral infections and mouth ulcers.
-Improve immunity.
-Help relieve common cold, flu, and fever.
-Purify the blood.
-Help fight infections.
-Reduce the effects of insect bites.
-Help reduce blood pressure.
-Relieve some breathing-related disorders.

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4) Ginger



Figure 8: Ginger

Common name: Ginger
Scientific name: Zingiber officinale
Family: Zingiberaceae
Biological source: Ginger is obtained from the rhizome (underground stem) of Zingiber officinale.

Chemical constituents:
Ginger contains gingerol, shogaol, sesquiterpenes, hydrocarbons, and oleoresin.

Uses:
-Ginger has several medicinal properties, such as:
-Anticancer activity
-Antiulcer activity
-Anti-inflammatory activity
-Antioxidant activity
-Antimicrobial activity
-Antidiabetic activity
-It may also be used in aphthous ulcers (mouth ulcers).

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5) Liquorice



Figure 9: Liquorice

Botanical name: Glycyrrhiza glabra
Family: Fabaceae
Biological source: Liquorice is obtained from the dried, unpeeled roots and stolons (underground stems) of Glycyrrhiza glabra.

Macroscopic characters:
Color: The outer surface is yellowish-brown to dark brown, The inner portion is yellowish in colour.
Odor: Faint and characteristic.
Taste: Sweet.
Size: **"It is approximately 10–50 cm in length and up to 2 cm in diameter.**
Shape: Straight and nearly cylindrical.

Chemical constituents:
Liquorice contains glycyrrhizin (glycyrrhizic acid), glycyrrhetinic acid, glucuronic acid, liquiritin, liquiritoside, isoliquiritin, glycosides, glucose, mannitol, resin, and volatile oils.

Uses:
-Liquorice is used for:
-Stomach problems.
-Cough and throat irritation.
-Menopausal symptoms.
-Some viral infections.
-Preparation of lozenges.
-Gargles for throat and mouth problems.

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6) Aloevera



Figure 10: Aloevera

Common name: Alovera
Scientific name: Aloe barbadensis(Aloe Vera)
Family: Liliaceae
Biological source: Aloe is obtained from the dried latex (juice) of the leaves of Aloe vera.

Chemical constituent:
Aloe vera contains various chemical constituents, including sterols, amino acids, enzymes, anthraquinones, lignins, vitamins, minerals, polysaccharides, monosaccharides, saponins, and salicylic acid.

Uses:
-Antiulcer activity
-Anti-inflammatory activity
-Antidiabetic activity
-Antioxidant activity
-Anticancer activity
-Wound-healing activity
-Its anti-inflammatory and soothing properties may help reduce pain and irritation caused by mouth ulcers.
-It may also help in wound healing.

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7) Papaya



Figure11: Papaya

Botanical Name: Carica papaya Linn.
Biological Source: Papain is obtained from the dried and purified latex of unripe green fruits and leaves of Carica papaya.
Family: Caricaceae.

Macroscopic Characters:
Colour: Yellow when ripe.
- Odour: No strong smell when uncut; ripe papaya has a slightly sweet smell.
- Taste: Sweet when ripe.
- Size:10-30cm in diameter and 15-45cm long
- Shape: Round, pear-shaped, or oval.

Chemical Constituents: Papain, chymopapain, cystatin, alkaloids, glycosides, tannins,

Uses:
- May help lower blood pressure.
- Helps in wound healing, Supports digestion.
- May help control blood sugar levels.
- May help lower cholesterol levels.

8) Neem



Figure 12:Neem

Botanical Name: Azadirachta indica
Biological Source: Neem is a tree that grows in tropical and subtropical regions. Its leaves, seeds, flowers, and bark are used for various purposes.
Family: Meliaceae

Macroscopic Characters:
- Colour: Green.
- Odour: Garlic-like smell.
- Taste: Bitter.
- Size: Neem leaves are about 20–40 cm long.
- Shape: Leaves are elongated or oval-shaped, smooth, shiny, and have serrated edges.

Chemical Constituents: The major chemical constituents include nimbolinin, nimbin, nimbidin, nimbidol, and sodium nimbinate.

Uses:
- Helps manage acne.
- Helps nourish and protect the skin.
- May help fight fungal infections.
- Traditionally used to support body cleansing.
- May help protect against some intestinal disorders.
- May support the immune system.
- Acts as a natural mosquito and insect repellent.

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9) Myrrh



Figure 13: Myrrh

Botanical Name: Commiphora molmol
Biological Source: Myrrh is a natural resin obtained from the tree Commiphora myrrha and other species of Commiphora.
Family: Burseraceae.

Macroscopic Characters:
- Colour: Reddish-brown on the outside.
- Odour: Pleasant and aromatic.
- Taste: Aromatic, bitter, and slightly sharp.
- Size: About 2.5–10 cm in diameter.
- Shape: Irregular, rounded tears.

Chemical Constituents: Resin, gum, terpenes, cuminic aldehyde, γ-commiphoric acids, limonene, galactose, arabinose, and glucuronic acid.

Uses:
- Acts as a stimulant.
- Has antiseptic properties that help prevent the growth of microorganisms.
- Traditionally used as a uterine stimulant.
- Used in mouthwashes and gargles because it helps tighten and soothe the mucous membranes of the mouth.

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10) Tamarind

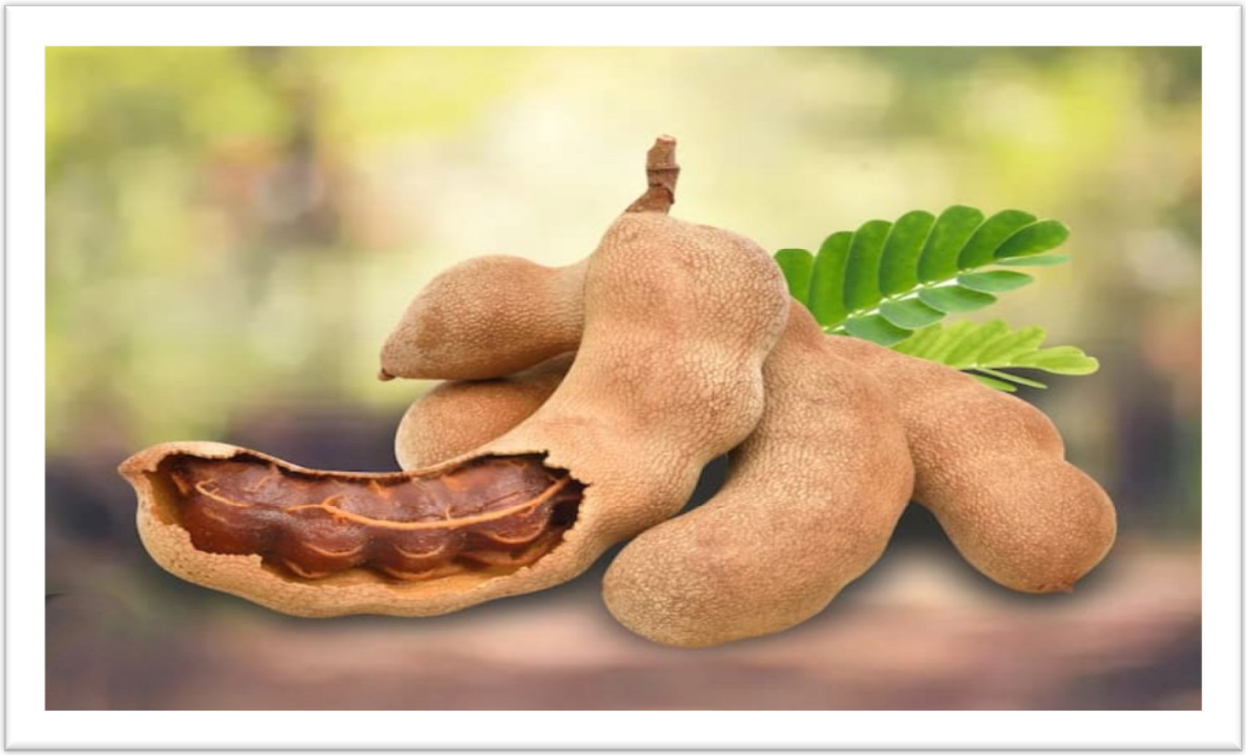


Figure 14: Tamarind

Botanical Name: Tamarindus indica Linn.
Biological Source: Tamarind is obtained from the dried, ripe fruits of Tamarindus indica. The hard outer covering of the fruit is removed.
Family: Leguminosae (Fabaceae).

Macroscopic Characters
- Colour: Reddish-brown.
- Odour: Pleasant smell.
- Taste: Sweet and sour.
- Size: About 5–20 cm long and 2 cm wide.
- Shape: Found as firm, black cakes containing fibres, seeds, and small amounts of outer fruit covering.

Chemical Constituents
Tartaric acid, acetic acid, succinic acid, gum, pectin, sugars, tannins, alkaloids, flavonoids, sesquiterpenes, glycosides, malic acid, and quinic acid.

Uses
- May help in weight management.
- May help protect the stomach against ulcers.
- May help control blood sugar levels.
- Helps improve digestion.
- May support heart health.
- May help maintain liver health.

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11) Coconut



Figure 15: Coconut

Botanical Name: Cocos nucifera
Biological Source: Coconut oil is obtained from the dried solid part of the endosperm (kernel) of Cocos nucifera.
Family: Palmaceae (Arecaceae).

Macroscopic Characters

- Colour: Green when young; turns brown as it matures.
- Odour: Sweet, fruity, and milky.
- Taste: Slightly sweet and nutty.
- Size: About 30–45 cm long and 15–20 cm in diameter.
- Shape: Oval or egg-shaped.

Chemical Constituents
Glucose, amino acids, electrolytes, potassium, calcium, triglycerides, saturated fatty acids, and unsaturated fatty acids.

Uses
-Helps keep the skin healthy.
-Helps improve hair health.
-Supports digestion.
-Provides energy to the body.
-May support immune system
-May support dental health

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12) Garlic



Figure 16: Garlic

Botanical Name: Allium sativum
Biological Source: Garlic is obtained from the bulbs of the plant Allium sativum Linn.
Family: Liliaceae

Macroscopic Characters:
Colour: White or pale white.
Odour: Strong and pungent smell.
Taste: Slightly sweet and mild buttery taste.
Size: Approximately 22 mm to 55 mm.
Shape: Globe-shaped bulb.
Chemical Constituents: Garlic contains amino acids such as glutamine, proline, glycine, alanine, cysteine, valine, methionine, isoleucine, leucine, tryptophan, and phenylalanine. It also contains a high concentration of sulphur compounds.

Uses:
- Helps support the body's defence against infections such as colds and coughs.
-Supports heart health.
-May help support brain function.
-Helps improve digestion.
-May help control blood sugar levels.
-Helps support the immune system.
-May support healthy skin.
- May help protect the stomach lining.

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13) Pomegranate



Figure 17: Pomegranate

Botanical Name: Punica granatum
Biological Source: Pomegranate is the fruit obtained from the plant Punica granatum.
Family: Lythraceae

Macroscopic Characters:
Colour: Light red to dark red.
Odour: Has a fruity, sweet, earthy, and slightly woody smell.
Taste: Sour with a slight sweetness.
Size: The fruit is about 5–12 cm in diameter.
Shape: Round with a slightly hexagonal appearance.

Chemical Constituents:
Pomegranate contains punicic acid, ellagitannins, flavonoids, anthocyanins, alkaloids, fructose, sucrose, glucose, and organic acids.

Uses:
-May help in the management of mouth ulcer.May help protect the liver from damage.
-Has been used traditionally against intestinal worms.
-May have antioxidant and anti-inflammatory properties.
-Has been investigated for its possible protective effects on brain health.
-Has been studied for potential benefits in Alzheimer's disease.
-May help support male reproductive health,May support weight management.

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14) Hibiscus



Figure 18: Hibiscus

Botanical Name: Hibiscus rosa-sinensis
Biological Source: Hibiscus is o. tained from the plant Hibiscus rosa-sinensis, commonly known as China rose.
Family: Malvaceae

Macroscopic Characters:
Colour: Flowers may be red, pink, yellow, orange, or a combination of different colours.
Odour: Usually has a mild, sweet, and floral smell.
Taste: Slightly sweet and sour, with an earthy taste.
Size: The plant can grow about 8–16 feet tall and 5–10 feet wide.
Shape: The flowers are large and trumpet-shaped.

Chemical Constituents:
Hibiscus contains tannins, anthraquinones, quinones, phenols, flavonoids, alkaloids, quercetin,

Uses:
- Helps in wound healing.
-May help reduce inflammation.
-Traditionally used to help manage fever.raditionally
-Usrd for cough

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15) Sega Leaves



Figure 19: Sega Leaves

Botanical Name: Salvia officinalis
Biological Source: Sage leaves are obtained from Salvia officinalis, a perennial, evergreen shrub with woody stems, greyish-green leaves, and blue to purple flowers.
Family: Lamiaceae

Macroscopic Characters:
Colour: Grey-green to whitish-green.
Odour: Slightly sweet smell.
Taste: Strong taste with a slightly minty and musky flavour.
Size: The leaves are up to 65 mm long and 25 mm wide.
Shape: The leaves are pointed and oblong in shape.
Chemical Constituents: Sage leaves contain essential oil compounds such as thujone, camphor, 1,8-cineole, α-humulene, α-pinene, camphene, and bornyl acetate.

Uses:
-May help improve memory.
-May help reduce hot flashes and night sweats during menopause.
- Helps reduce inflammation.
-May help regulate blood sugar levels.
-May help lower cholesterol levels.
-Contains antioxidants that are being studied for their potential protective effects against cancer.
- May help support skin healing.
-Traditionally used to soothe sore throats

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VII. INFERENCE

This review focuses on the important therapeutic role of medicinal plants in managing mouth ulcers. Herbal plants contain natural chemical compounds, such as flavonoids, that may help reduce ulcers and promote healing. These plants are easily available and have many medicinal properties. Ayurveda is an ancient system of medicine that helps us understand the medicinal uses of plants. Therefore, it is important to identify, study, and standardize the active compounds present in medicinal plants through scientific research.Combining traditional Ayurvedic Knowledge with modern scientific methods may help develop effective treatments for mouth Ulcers with side effects.

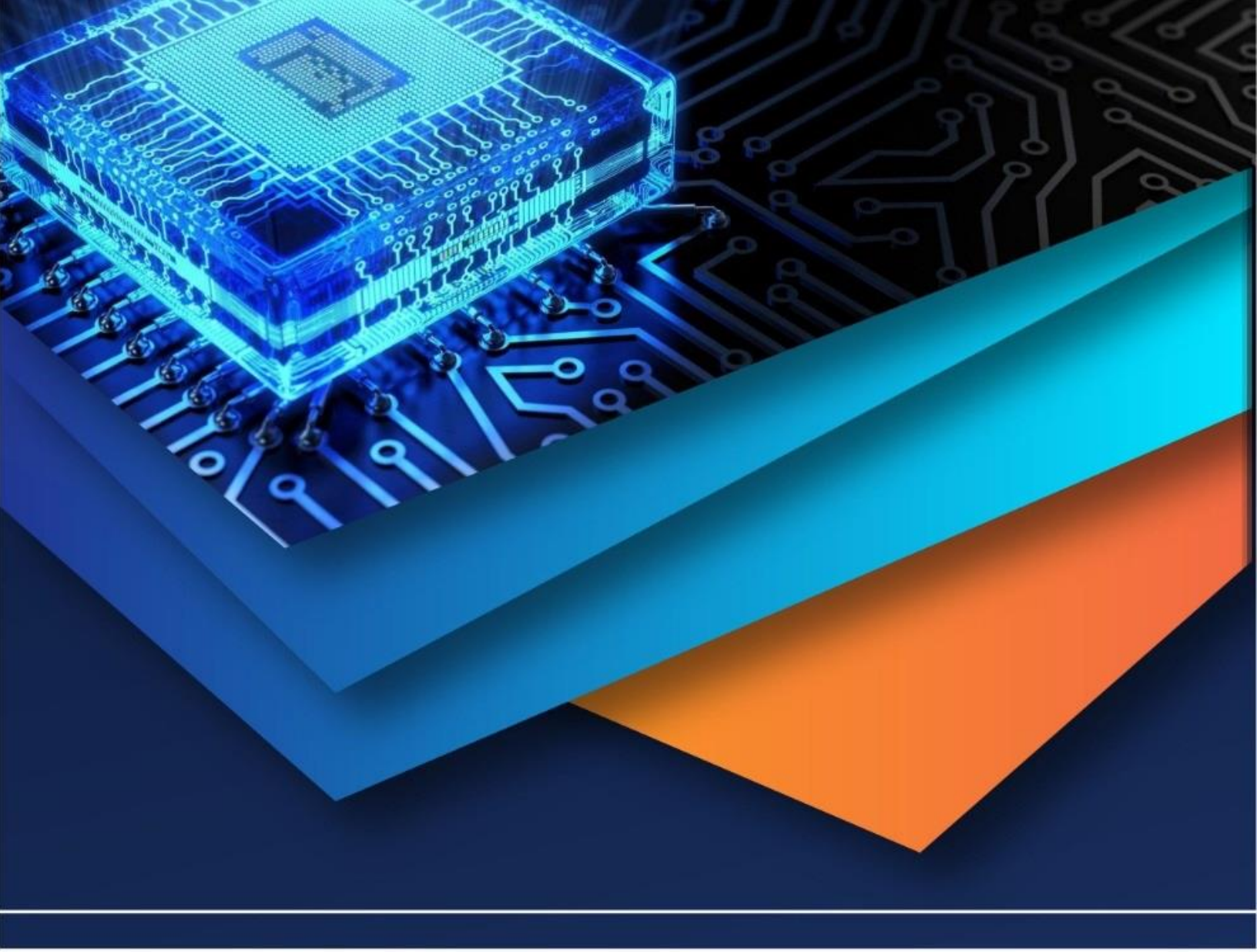
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