

Manuscript Studies

Bridging Tradition with Science in Persian Manuscript Restoration: A Comprehensive Review of Eremurus (*Seriš*) Adhesive

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Introduction

The illustrious history of bookmaking in Iran is a testament to the synergy of art and craftsmanship. It reflects an era when a collective of artisans, from papermakers to bookbinders, converged within the royal *kārkhāne* (workshops) to create literary masterpieces. These skilled individuals not only crafted new codices but also played a pivotal role in restoring manuscripts affected by time and the elements, thereby blending art with preservation.

Persian bookbinders, traditionally known as *ṣahḥāfi* or *jeld-sāzi*, were custodians of both the aesthetic and structural integrity of books, undertaking tasks ranging from binding to conservation. Their expertise extended to an array of related crafts, underscoring their central role in the cultural stewardship of written heritage.²

In the crucible of these time-honored practices, Eremurus (*Seriš*) emerged as a vital material, valued for its adhesive qualities essential for manuscript conservation. This paper review aims to elucidate the intersection of traditional restoration practices and modern scientific research on *Seriš*. By synthesizing recent advances

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² Iraj Afshar, "Bookbinding (Article 2)," *Encyclopaedia Iranica*, accessed December 29, 2022, <https://iranicaonline.org/articles/bookbinding-sahhafi-jeld-sazi-2>.

with historical insights, the review underscores *Seriš*'s enduring significance and potential to enhance contemporary conservation methods, drawing from a rich legacy of Persian craftsmanship to inform and elevate modern practices.³

In examining the evolution of terminology and practice—from the *warrāq* and *mojalladgar* of the past to the *maremat-gar* of today—the review contemplates the transformation of conservation roles.⁴ It explores how the wisdom of yesteryears, encapsulated in the use of *Seriš*, can be harmonized with innovative scientific approaches to secure the legacy of Persian manuscripts for future generations.



Figure 1 - 16th Century Persian book cover and flap in dark brown leather in gilded technique complemented with a colorful doublure (inner cover) in light brown leather, overlaid with gold filigree work using colored papers as background of the filigree and arranged into an all-over honeycomb pattern. (Islamic Arts Museum Malaysia collection, Acc. No. 2013.7.97).

Historical Significance of *Seriš* in Restoration Practices

Tracing the history of *Seriš* reveals a profound legacy rooted in the Iranian art of bookbinding and manuscript restoration—a craft that has been enriched by generations of artisans. The binding and mending of manuscripts, once a regal enterprise, have endured the

³ Mandana Barkeshli, Sadra Zekrgoo, and Nasim Koohkesh, “*Seriš* (Eremurus) Adhesive and Its Use in Traditional and Modern Iranian Manuscripts Conservation Practice,” 2023.

⁴ Iraj Afshar, “Bookbinding (Article 2),” *Encyclopaedia Iranica*, accessed December 29, 2022, <https://iranicaonline.org/articles/bookbinding-sahhafi-jeld-sazi-2>.

test of time, adapting to the shifts of eras while preserving the sanctity of texts through disasters both natural and man-made. Renowned for its restorative qualities, *Seriş* has been immortalized in historical records, its significance resonating through the annals of literary and scientific heritage. Among the historical sources are literary references, such as *Al-Saydaneh fi al-Tebb*⁵ by Abu Raihan Biruni (11th century) and *Farrokhnameh*⁶ by Jamali-ye Yazdi (12th century). *Resāleh dar Bayān-e Kaṭṭ va Morakkab va Kāḡaq* and *Sāktan-e Ranghā*⁷ by Anonymous (15th century.), *Ādāb al-Mašq*⁸, *Rasm-al Katt*⁹, *Savād al-kaṭṭ*¹⁰ by Majnun Rafiqi Heravi (16th century), *Ādāb al-Mašq*¹¹ by Bābā Shāh Isfahānī (16th century), *Şerāt al-Şoṭur*¹² by Soltan Ali Mašhadi (16th century), *Kaṭṭ va Morakkab*¹³

⁵ Abu Raihan Biruni, *Al-Saydaneh fi al-Tebb*, trans. Mozaffarzadeh (Tehran: Farhangestane-e Zaban va Adabiyat-e Farsi, 2004). [In Persian].

⁶ Jamali Yazdi, *Farrokhnameh*, ed. Iraj Afshar (Tehran: Amirkabir Publication, 2007). [In Persian]. Portions also available in Najib Mayel Heravi, ed., *Ketab-Arayi Dar Tamaddun-I Eslami*, 533–542, 1046–1048 (Mashhad: Islamic Research Centre of Astan-e Quds-e Razavi, 1993).

⁷ Anonymous, *Resāleh dar Bayān-e Kaṭṭ va Morakkab va Kāḡaq va Sāktan-e Ranghā* [A Treatise about Calligraphy, Ink, and Making Dyes], in *Ketab-Arayi Dar Tamaddun-I Eslami*, ed. Najib Mayel Heravi, 533–542 (Mashhad: Islamic Research Centre of Astan-e Quds-e Razavi, 1993). [In Persian].

⁸ Majnun Rafiqi Heravī, *Ādāb al-Mašq*, in *Ketab-Arayi Dar Tamaddun-I Eslami*, ed. Najib Mayel Heravi, 533–542 (Mashhad: Islamic Research Centre of Astan-e Quds-e Razavi, 1993). [In Persian].

⁹ Majnun Rafiqi Heravī, *Rasm-al Katt*, in *Ketab-Arayi Dar Tamaddun-I Eslami*, ed. Najib Mayel Heravi, 161–181 (Mashhad: Islamic Research Centre of Astan-e Quds-e Razavi, 1993). [In Persian].

¹⁰ Majnun Rafiqi Heravī, *Savād al-kaṭṭ*, in *Ketab-Arayi Dar Tamaddun-I Eslami*, ed. Najib Mayel Heravi, 185–206 (Mashhad: Islamic Research Centre of Astan-e Quds-e Razavi, 1993). [In Persian].

¹¹ Bābā Shāh Isfahānī, *Ādāb al-Mašq* [Manners of Writing], in *Ketab-Arayi Dar Tamaddun-I Eslami*, ed. Najib Mayel Heravi, 147–157 (Mashhad: Islamic Research Centre of Astan-e Quds-e Razavi, 1993). [In Persian].

¹² Soltan Ali Mašhadi, *Şerāt al-Şoṭur* [Bridge of Lines], in *Ketab-Arayi Dar Tamaddun-I Eslami*, ed. Najib Mayel Heravi, 533–542 (Mashhad: Islamic Research Centre of Astan-e Quds-e Razavi, 1993). [In Persian].

¹³ Hossein Aqili Rostamdari, *Kaṭṭ va Morakkab*, in *Ketab-Arayi Dar Tamaddun-I Eslami*, ed. Najib Mayel Heravi, 323–342 (Mashhad: Islamic Research Centre of Astan-e Quds-e Razavi, 1993). [In Persian].

by Hossein Aqili Rostamdari (16th century), *Golzār-e Şafā*¹⁴ by Ali Seyrafi (16th century), *Favāyed al-koṭuṭ*¹⁵ by Boḳāri, Mohammad Ibn-e Dust Mohammad (16th century) and *Makhzan al-Advieh*¹⁶ by Mohammad Hossein Aghili Alavi Khorasani (18th century). This examination of *Seriş*'s historical context underscores its indelible mark on the preservation of cultural artifacts—a lineage of craftsmanship that has shaped the narrative of Iranian cultural identity.¹⁷

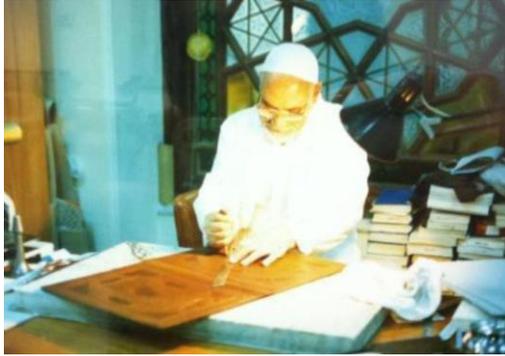


Figure 2- Ramzan Ali Moqadasi in his restoration workshop. (Image courtesy of Mojdeh Roohi-Azizi)

Integration of Traditional and Modern Conservation Methods

The past and present converge in the realm of conservation, where the use of *Seriş* represents an enduring bridge between age-old techniques and cutting-edge scientific advancements. The modern era has underscored the importance of integrating tradition with

¹⁴ Ali Seyrafi, *Golzār-e Şafā*, in *Ketab-Arayi Dar Tamaddun-I Eslami*, ed. Najib Mayel Heravi, 533–542 (Mashhad: Islamic Research Centre of Astan-e Quds-e Razavi, 1993). [In Persian].

¹⁵ Mohammad Ibn-e Dust Mohammad Boḳāri, *Favāyed al-koṭuṭ* [Advantages of Scripts], in *Ketab-Arayi Dar Tamaddun-I Eslami*, ed. Najib Mayel Heravi, 533–542 (Mashhad: Islamic Research Centre of Astan-e Quds-e Razavi, 1993). [In Persian].

¹⁶ Mohammad Hossein Aghili Alavi Khorasani, *Makhzan al-Advieh*, republished in 2009 (Tehran: Tehran University Press).

¹⁷ Mojdeh Roohi-Azizi, Abdolrasool Vatandoust, and Hamid Malekian, “Sharhi Bar Maremmat-e Sonnati-e Kaghaz dar Iran,” *Faslname-ye Kanjine-ye Asnad* 25, no. 3 (2015): 114–127.

innovation, elevating the potential of *Seriš* to new levels of restoration efficacy. Confronting challenges such as natural coloration and susceptibility to microbial degradation, current researchers are exploring revolutionary methods—among them nanotechnology and advanced solvent extraction—to optimize *Seriš* for contemporary use. This integration reflects a commitment to preserving the essence of cultural heritage while harnessing the transformative potential of scientific progress.¹⁸

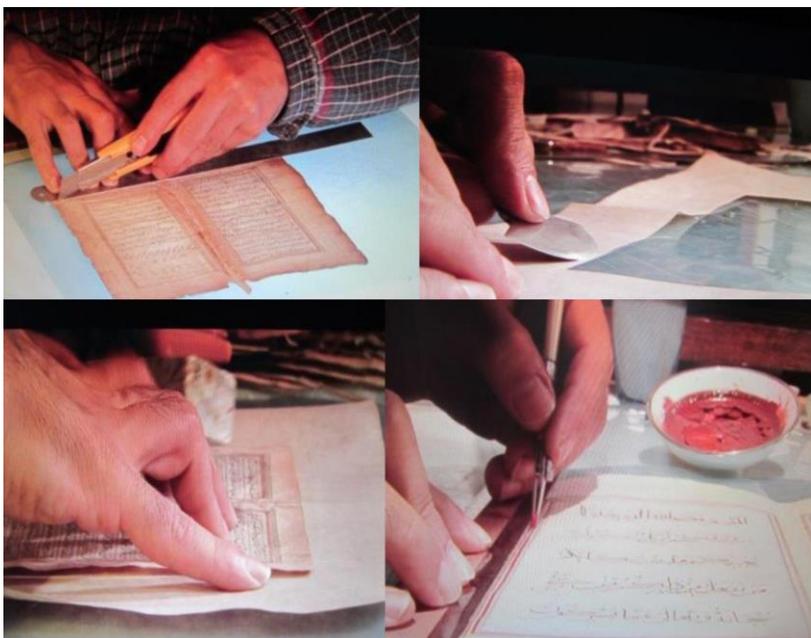


Figure 3- The process of traditional text panel and margin technique (*matn va hashieh*). Image courtesy of Mojdeh Roohi-Azizi

¹⁸ Mandana Barkeshli, Sadra Zekrgoo, and Nasim Koohkesh, “*Seriš* (Eremurus) Adhesive and Its Use in Traditional and Modern Iranian Manuscripts Conservation Practice,” 2023.

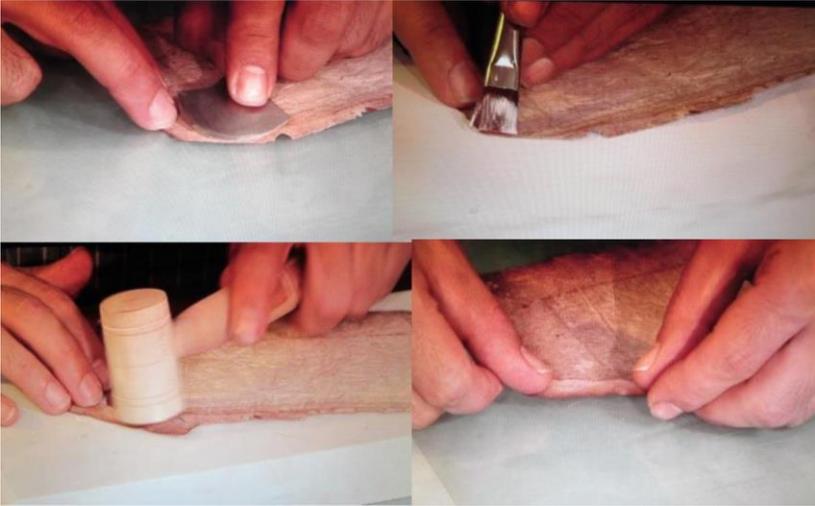


Figure 4 - The process of traditional mending technique (*vassāli*). Image courtesy of Mojdeh Roohi-Azizi



Figure 5 - Eremurus root, harvested from Binaloud mountain, Iran (Image by Nasim Koohkesh)

Botanical Background and Historical Usage

Known scientifically as *Eremurus* and regionally as *Seriš*, this resilient plant of the Asphodeloideae subfamily has adapted to the arid climates of Iran. For centuries, its roots, rich in glucomannans and fructans—particularly inulin—have been processed into a strong and flexible adhesive. This adhesive has played a vital role in the preservation of cultural documents, offering both durability and

versatility for manuscript restoration.¹⁹ However, the natural yellowish hue of *Seriş* poses aesthetic challenges, prompting ongoing research to minimize its impact on historical manuscripts.²⁰

Taxonomic Classification of Eremurus

The plant *Eremurus*, commonly referred to as *Seriş*, belongs to the Asphodeloideae subfamily and is well-suited to arid Iranian climates. Its botanical properties, specifically the presence of glucomannans and fructans, such as inulin, make it an essential component in manuscript conservation practices. Historically, its roots have been transformed into a reliable adhesive, crucial for preserving cultural artifacts.²¹ Despite its environmental stability, the adhesive's yellowish tint remains a challenge for maintaining the visual integrity of historical manuscripts, necessitating continued research into its refinement.²²

Traditional and Modern Interplay in the Use of Seriş

The use of *Seriş* by traditional restorers, particularly in the realm of bookbinding restoration, has demonstrated its durability and efficacy, a testament to its centuries-old application. The transition from traditional to modern restoration methods in Iran reflects a shift in conservation ethics, where minimal intervention and reversibility are paramount, leading to a gradual replacement of *Seriş* with modern synthetic adhesives.²³ This evolution underscores a pivotal challenge

¹⁹ Mandana Barkeshli, Sadra Zekrgoo, and Nasim Koohkesh, "Seriş (Eremurus) Adhesive and Its Use in Traditional and Modern Iranian Manuscripts Conservation Practice," 2023.

²⁰ Mojdeh Roohi-Azizi, Abdolrasool Vatandoust, and Hamid Malekian, "Sharhi Bar Maremmt-e Sonnati-e Kaghaz dar Iran," *Faslname-ye Kanjine-ye Asnad* 25, no. 3 (2015): 114–127.

²¹ Mandana Barkeshli, Sadra Zekrgoo, and Nasim Koohkesh, "Seriş (Eremurus) Adhesive and Its Use in Traditional and Modern Iranian Manuscripts Conservation Practice," 2023.

²² Mojdeh Roohi-Azizi, Abdolrasool Vatandoust, and Hamid Malekian, "Sharhi Bar Maremmt-e Sonnati-e Kaghaz dar Iran," *Faslname-ye Kanjine-ye Asnad* 25, no. 3 (2015): 114–127.

²³ Mandana Barkeshli, Sadra Zekrgoo, and Nasim Koohkesh, "Seriş (Eremurus) Adhesive and Its Use in Traditional and Modern Iranian Manuscripts Conservation

in preserving the cultural authenticity of restoration practices while adhering to contemporary conservation standards.

Cultural Legacy and the Contemporary Significance of *Seriš*

Beyond its physical attributes, *Seriš* embodies the cultural legacy of Iran, representing an enduring link to the past. Its historical significance in literature and conservation, as captured by poets and scientists alike, evokes a collective memory that resonates with the identity of Iranian culture. Contemporary conservation practices must navigate this dichotomy, honoring the historical use of *Seriš* while embracing advancements that align with current ethical conservation frameworks.

Case Study – Eremurus (*Seriš*) in Modern Restoration

The case study on the modification of *Seriš* adhesive demonstrates the potential for integrating traditional materials into modern conservation efforts. Scientific analysis aimed at understanding the advantages and addressing the challenges associated with *Seriš*, such as its coloration, contributes to the development of innovative, sustainable conservation solutions that respect the material's historical context.²⁴



Figure 6- Cross section of Eremurus root (left) and powder (right) - Image by Nasim Koohkesh

Practice,” 2023.

²⁴ Ibid.

Advantages and Disadvantages of *Seriš* in Modern Conservation

The employment of *Seriš* as a traditional adhesive in the preservation of Iranian cultural heritage offers several noteworthy advantages. Its substantial adhesive strength, reversibility upon contact with water, and neutral pH make it an attractive option for manuscript restoration. Tousi et al. note that *Seriš*'s viscosity in water surpasses that of formaldehyde-based adhesives, enhancing its adhesion and binding power, particularly when freshly prepared, thus creating a strong bond with paper materials.²⁵

Strengths as an Adhesive Material

Seriš's composition, primarily due to its high glucomannan content, endows it with exceptional bonding strength, which is critical for maintaining the structural integrity of cultural artifacts. Its capacity to reverse in water, paired with its neutral pH, conforms with the ethical considerations of conservation, facilitating safe detachment and subsequent treatments as needed.²⁶

Challenges and Modern Considerations

Despite these benefits, the application of *Seriš* is not without complications. The natural yellow coloration of this adhesive may lead to undesirable staining on paper artifacts.²⁷ Its organic nature also makes it susceptible to microbiological attacks, which pose a significant risk to the longevity and preservation of materials. *Seriš*, along with carboxymethyl cellulose, has been found to be particularly prone to fungal degradation by species such as *Cladosporium* and *Penicillium*. Moreover, the adhesive properties of *Seriš* begin to

²⁵ Ehsan Taghizadeh Tousi, Sabar Bauk, Rokiali Hashim, Mohammad Suhaimi Jaafar, Ali Mohammad Hamdan Abuarra, Khalid Saleh Ali Aldroobi, and Amer Mahmoud Al-Jarrah, "Measurement of Mass Attenuation Coefficients of Eremurus-Rhizophora spp. Particleboards for X-ray in the 16.63–25.30 KeV Energy Range," *Radiation Physics and Chemistry* 103 (2014): 119–125.

²⁶ Ibid.

²⁷ Kouros Samanian, "Traditional or Modern Conservation Materials and Techniques?" in *Care and Conservation of Manuscripts* 13 (2011): 341–349.

diminish mere hours after preparation, necessitating its immediate use upon mixing.²⁸

Toward a Hybrid Approach

The conservation community is increasingly favoring techniques that adhere to modern standards, which call for minimal intervention and reversibility. Yet, there is an ongoing discussion about incorporating the advantages of *Seriš* into modern conservation and bookbinding efforts. There is enough merit in this local adhesive to warrant further analysis and potential reintegration into current conservation practices, where its benefits could be harnessed effectively.²⁹

Conducted Scientific Research on *Seriš*

The exploration of scientific studies on *Seriš* forms the crux of this review. While summarizing key findings, a deeper critique of the methodological soundness and contextual relevance of these studies is necessary to appreciate their contribution to the field of conservation.

Evaluation and Modification of *Seriš* for Restoration Purposes (1995)

Adnani's foundational study in 1995 initiated the scientific investigation of *Seriš* for conservation. Although instrumental, the study's reliance on limited solvent concentrations and a singular focus on decolorization necessitates a broader methodological spectrum for future research.³⁰

Side Effects of Restoration Adhesives on Paper (2011)

²⁸ Nasim Koohkesh, Korous Samanian, and Maryam Afsharpour, "Investigation of Improvement of Viscosity and Viscidity of *Eremurus* (*Seriš*) Herbal Adhesive for Paper Restoration Aim," *Ganjine-ye Asnad* 29, no. 2 (2019): 124–148, <https://doi.org/10.22034/ganj.2019.2363>.

²⁹ Ibid.

³⁰ Sedigheh Adnani Hosseini, *Arzyābi va eslāh-e časb-e giāhi-ye seriš barāye ahdāf-e maremmat-e asnād va kotob-e farhangi* [Evaluation and Modification of *Eremurus spectabilis* for the Restoration Purposes of Cultural Documents and Books] (Master's thesis, Esfahan University, 1995). [In Persian].

Moradkhan's work in 2011 on adhesive side effects, including *Seriš*, presented groundbreaking findings on their influence on paper properties. However, its limitation to accelerated aging calls for extended research that includes natural aging processes to mimic real-world conditions better.³¹

Introduction of *Seriš* in International Restoration Forums (2013)

Samanian's 2013 presentation at the Copenhagen conference successfully placed *Seriš* in the global conservation narrative. Nonetheless, follow-up studies are needed to translate conference discussions into standardized conservation practices.³²

Nanotechnology for Color Removal (2013)

In 2013, Golbon's research on utilizing nanotechnology for *Seriš* decolorization opened new avenues for adhesive modification. Despite this, the difficulty in separating nanomaterials from the adhesive matrix indicates a need for methodological refinements.³³

Comparison with Formaldehyde-Based Adhesives (2014)

The comparative study by Tousi et al. in 2014 shed light on *Seriš*'s properties in contrast to formaldehyde adhesives. Yet, its application to conservation remains indirect, suggesting an area ripe for direct comparative studies within the conservation field.³⁴

³¹ Zohreh Moradkhani, Mahnaz Abdullah Khan Gorji, Reza Vahidzadeh, Sedigheh Rouhi, and Roghayeh Mahmoudi, "Barresi-ye Mizān-e Ta'sir-e Časb-hā-ye Maremmati dar Jazb va Rošd-e Avāmel-e Biolojik dar Hozeye Asnād-e Aršivi-ye Irān" [A Study on the Effect of Conservation Adhesives on the Absorption and Development of Biological Agents in the Archival Records of Iran]," *Ganjine-ye Asnad* 21, no. 2 (2011): 62–79. [In Persian].

³² Kouros Samanian, "Traditional or Modern Conservation Materials and Techniques?" in *Care and Conservation of Manuscripts 13* (2011): 341–349.

³³ Raheleh Golbon, *Estefāde az nāno fannāvāri dar erteqā'-e časb-e giāhiye seriš barāye hefāzat va maremmat-e nosax-e xatti* [Using Nanotechnology to Promote the Herbal Adhesive, *Eremurus spectabilis*, for Manuscript Protection and Repair] (Master's thesis, 2013).

³⁴ Ehsan Taghizadeh Tousi, Sabar Bauk, Rokiali Hashim, Mohammad Suhaimi Jaafar, Ali Mohammad Hamdan Abuarra, Khalid Saleh Ali Aldroobi, and Amer Mahmoud Al-Jarrah, "Measurement of Mass Attenuation Coefficients of Eremurus-

Elimination of Coloring Compounds through Solvent Extraction (2020)

Koohkesh's investigation in 2020 on solvent extraction techniques marked a pivotal point in *Seriš*'s research by addressing its coloring issue. Future studies should expand upon this work, scaling it up to larger conservation projects and diverse manuscript types.³⁵ These studies collectively advance our knowledge of *Seriš*, yet they also underscore a persistent challenge: achieving the delicate balance between adhesive efficacy and the preservation needs of historical papers. Research going forward must navigate these complexities to forge enduring solutions for cultural artifact conservation."

Critical Analysis of Scientific Research

In scrutinizing the scientific research conducted on *Seriš* over the past three decades, it becomes evident that while significant strides have been made, there are critical aspects that warrant deeper examination and evaluation. Let's undertake a more detailed critical analysis of the key studies:

Evaluation and Modification of *Seriš* for Restoration Purposes

Adnani's 1995 pioneering research provided valuable insights into the adhesive properties of *Seriš* and its potential for restoration purposes. However, several methodological limitations hinder a comprehensive assessment of its findings. Adnani's focus on color removal, while crucial for restoration, overlooked broader aspects such as long-term durability and reversibility. Moreover, the study's reliance on a single solvent concentration for adhesive dissolution limits the generalizability of its conclusions. Future research should adopt a more systematic approach, considering diverse solvent concentrations and exploring additional modification techniques to enhance adhesive properties while addressing coloration issues.

Rhizophora spp. Particleboards for X-ray in the 16.63–25.30 KeV Energy Range," *Radiation Physics and Chemistry* 103 (2014): 119–125.

³⁵ Nasim Koohkesh, Kouros Samanian, and Maryam Afsharpour, "Eliminating Color from *Seriš* (Eremurus) Paste for Paper Conservation and Restoration," *Journal of Cultural Heritage* 44 (2020): 53–62, <https://doi.org/10.1016/j.culher.2019.11.009>.

Side Effects of Restoration Adhesives on Paper

Moradkhan's 2011 investigation into the side effects of restoration adhesives offered valuable insights into the complex interactions between adhesives and paper substrates. However, the study's scope was somewhat limited, focusing primarily on accelerated aging experiments without delving into real-world conservation scenarios. Additionally, the study's comparative analysis of adhesives could have been more comprehensive, incorporating a wider range of materials and substrates. To strengthen future research in this area, a more nuanced approach that considers diverse paper types, adhesive applications, and conservation contexts is warranted.

Introduction of *Seriş* in International Restoration Forums

Samanian's 2013 advocacy for *Seriş*'s inclusion in international restoration forums highlighted its potential as a sustainable alternative to synthetic adhesives. While the presentation served to raise awareness of *Seriş*'s advantages and disadvantages, its impact on actual conservation practices remains unclear. Future research should focus on bridging the gap between advocacy efforts and practical implementation, exploring strategies to overcome barriers to adoption and promoting *Seriş*'s integration into mainstream conservation methodologies.

Nanotechnology for Color Removal

Golbon's 2013 exploration of nanotechnology for color removal in *Seriş* represents a promising avenue for addressing its aesthetic limitations. However, the study's challenges in separating carbon nanotubes from the adhesive solution underscore the complexities inherent in nanomaterial applications for restoration purposes. Further research is needed to overcome these technical hurdles and optimize nanotechnology-based approaches for practical implementation in conservation settings.

Comparison with Formaldehyde-Based Adhesives

Tousi et al.'s 2014 comparative study offered valuable insights into *Seriş*'s adhesive properties relative to formaldehyde-based adhesives.

However, the study's focus on adhesion strength and viscosity overlooks broader considerations such as long-term durability, reversibility, and environmental impact. Future research should adopt a more holistic approach, considering a broader range of performance metrics and exploring *Seriš*'s suitability across diverse conservation contexts.

Elimination of Coloring Compounds through Solvent Extraction

Koohkesh's 2020 research represents a significant advancement in addressing *Seriš*'s coloration issue through solvent extraction methods. By stabilizing enzymes and employing ethanol extraction, Koohkesh demonstrated the efficacy of solvent-based approaches in improving *Seriš*'s aesthetic and adhesive properties. However, the study's focus on laboratory-based experiments limits its applicability to real-world conservation scenarios. Future research should focus on validating these findings in practical conservation settings, taking into account factors such as substrate compatibility, long-term stability, and cost-effectiveness.

In summary, while the scientific research conducted on *Seriš* has provided valuable insights into its potential applications in cultural heritage conservation, there remains a need for more comprehensive, interdisciplinary, and contextually relevant studies. By addressing methodological limitations, exploring innovative approaches, and bridging the gap between research and practice, future endeavors can further advance our understanding of *Seriš* and its contributions to the preservation of cultural artifacts.

Conclusion

In conclusion, the synthesis of scientific research on *Seriš* underscores its transformative potential in revitalizing traditional restoration practices and advancing contemporary conservation methods. By integrating insights from botanical studies, historical research, and scientific investigations, this review has illuminated the multifaceted significance of *Seriš* in the preservation of cultural heritage.

The potential contributions of *Seriš* to cultural heritage

conservation are manifold. Its adhesive properties—enhanced by recent advancements in research and technology—hold promise for improving the durability, reversibility, and aesthetic integration of restoration materials. By harnessing its strengths while addressing known limitations, researchers can develop innovative approaches that bridge traditional knowledge with modern conservation techniques.

Moreover, *Seriş* research opens avenues for interdisciplinary collaboration, encouraging partnerships among botanists, chemists, conservators, and cultural heritage professionals. Through such collaborative efforts, diverse expertise can be brought together to address complex challenges and devise sustainable strategies for preserving cultural artifacts and manuscripts.

Ultimately, the renewed interest in *Seriş* within the field of heritage preservation affirms the enduring value of traditional practices and reflects a continuing commitment to knowledge, innovation, and sustainability. By embracing both the historical legacy and the inherent scientific properties of *Seriş*, researchers can help forge a more inclusive and ecologically responsible future for conservation, ensuring that future generations inherit a world enriched by the wisdom and treasures of the past.