Review Form 1.7

Journal Name:	**Asian Journal of Applied Chemistry Research**
Manuscript Number:	**Ms_AJACR_107435**
Title of the Manuscript:	**Exploring the World of Thin-Layer Chromatography: A Review**
Type of the Article	**Review Article**

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PART 1: Review Comments

	Reviewer's comment	Author's comment *(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)*
Compulsory REVISION comments **1. Is the manuscript important for scientific community? (Please write few sentences on this manuscript)** **2. Is the title of the article suitable? (If not please suggest an alternative title)** **3. Is the abstract of the article comprehensive?** **4. Are subsections and structure of the manuscript appropriate?** **5. Do you think the manuscript is scientifically correct?** **6. Are the references sufficient and recent? If you have suggestion of additional references, please mention in the review form.** **(Apart from above mentioned 6 points, reviewers are free to provide additional suggestions/comments)**	**yes** **yes** **yes** **yes** **Information can be improved, More detailed reviews can be added.** **The article contains numerous repetitions, lacks proper organization, and has citation issues. It discusses the applications of TLC in pharmaceutical analysis, food safety, and petrochemical research, highlighting its ability to identify compounds, validate their identities, and assess chemical purity. The article also mentions common issues encountered during TLC experiments and provides some troubleshooting solutions. It contains several mistakes and issues, including unclear or redundant sentences, incomplete explanations, and awkward phrasing. The article covers topics such as spotting the TLC plate, the location of spotting, development of solvents, mobile phases, TLC plate development, visualization, assessment of TLC, and preparative TLC. However, these topics could be presented more clearly and coherently for better understanding. The content needs significant revisions to improve clarity and accuracy. Overall, the article requires significant editing and reorganization to improve clarity and coherence.** **Introduction: The provided article introduces thin-layer chromatography (TLC) but suffers from numerous issues, including repetition, lack of clarity, and insufficient explanations. It covers various aspects of TLC, including the principle, Rf values, nature of adsorbents, mobile phase, temperature, dimensions of the layer, developing tank, photographic technique, visualization, sensitivity, preparation of the plate, and capillary spotters.** **Repetition and Lack of Clarity: The introduction contains multiple repetitions of the same information, which can confuse the reader (e.g., repeated mentions of Russian botanist Mikhail S. Tswett's work). It lacks clarity and a smooth flow, making it difficult to follow.** **Principle of TLC:** **2. Inconsistency in Terminology: The use of terms like "chroma" and "graphy" in the introduction is not explained or tied to the principle of TLC. It's unclear how these terms relate to chromatography.** **Lack of Explanation: The description of TLC lacks an explanation of key concepts, such as the stationary phase and mobile phase. It needs to provide more context for readers who may not be familiar with chromatography.** **Rf Value:** **4. Inaccurate Information: The statement that Rf values can never be more than one is misleading. Rf values can be greater than one if the solute travels farther than the solvent.**	

	Nature of Adsorbent: **5. Repetition: The repeated explanation of adsorbent materials and their uses in TLC makes the text redundant.** **Lack of Organization: The information about various adsorbents and their applications is disorganized and could benefit from a clearer structure.** **Mobile Phase:** **7. Inconsistency: The text mentions the importance of using the proper solvent but does not provide details about the types of solvents that are suitable for different compounds or polarity. It lacks specific examples or guidance.** **Temperature:** **8. Repetition: Similar information about the impact of temperature on TLC separation is repeated multiple times without adding new insights.** **Dimensions of Layer:** **9. Repetition: The discussion of layer thickness repeats without offering new information or examples.** **Developing Tank:** **10. Repetition: The mention of thicker layers leading to slower migration and better separation repeats previous information without elaboration.** **Incomplete Sentences: The sentence, "There must be a cover that fits adequately," lacks clarity and context.** **Photographic Technique:** **12. Lack of Explanation: The section discussing the impact of exposure to light and photographic materials could benefit from more context and detail.** **Visualization:** **13. Repetition: The explanation of how a larger sample mass affects visualization is repeated multiple times without providing additional insights.** **Sensitivity:** **14. Lack of Detail: While it mentions the impact of sample mass on sensitivity, it doesn't provide specific guidance or examples.** **Preparation of Plate:** **15. Repetition: The information about creating a baseline and the composition of TLC plates is repeated several times, which can be condensed for clarity.** **Capillary Spotters:** **16. Repetition: The section discussing the use of glass capillary tubes repeats information without adding new details.** **Overall, the provided text is marred by repetition, lacks clarity, and needs more in-depth explanations and examples to make it reader-friendly. It should also be organized into distinct sections with clear headings to improve readability.** **7 SPOTTING THE PLATE:** **The term "TLC" should be spelled out as "thin-layer chromatography" at least once for clarity.** **The sentence "A sample containing two chemicals would result in two separate spots, and so on, as each component should, in theory, generate a different spot in a combination." is somewhat unclear and could be rewritten for better clarity.** **The explanation of the Rf-value is incomplete. It should be mentioned that Rf is the ratio of the distance traveled by the compound to the distance traveled by the solvent.** **8 LOCATION OF THE SPOTTING:** **The sentence "To use the following specifically for spraying the unseen regions in TLC, see the following." is unclear and redundant.** **9 DEVELOPMENT OF SOLVENTS:** **The sentence "The solvent leaves its initial location and moves up the plate." is somewhat repetitive and could be rephrased**	

	for clarity. **The sentence "The polarity of the plate, the developing solvent, and the spot material must all be balanced for the outcome to be effective." could be explained in more detail for better understanding.** **The sentence "The best solvent may need some trial and error during the most important TLC step, the mobile phase." is redundant and could be omitted.** **9.1 Mobile phase:** **The sentence "Think of the analytes' chemical properties like you would while choosing a plate" is somewhat unclear and could benefit from additional explanation.** **9.2 Developing of TLC Plate:** **The explanation of the slurry used for soft layer coating is not very clear. It should specify how the slurry is appliedand dried on the plate.** **The sentence "When applying the sample, it is important to avoid touching the adsorbent's surface since doing so would distort the spots and reduce the accuracy of the quantitative data on the chromatogram that followed." is somewhat awkwardly phrased and could be improved for clarity.** **9.3 Visualization:** **The sentence "Visualization approaches may be either destructive (the compound changes into something new after treatment) or non-destructive (the compound remains intact)." is somewhat repetitive and could be simplified for clarity.** **The sentence "When compared to seeing a TLC plate under UV light, using a chemical stain is detrimental." could be clarified by explaining why using a chemical stain is detrimental.** **10 ASSESSMENT OF TLC:** **The sentence "TLC may be used for numerical analyses." needs further elaboration to explain how TLC is used for quantitative analysis.** **The phrase "thin-layer chromatography or TLC" is redundant. You can simply refer to it as TLC after its full name is spelled out once.** **The paragraph could benefit from better organization and flow for improved readability.** **11 PREPARATIVE TLC:** **The sentence "Chemical development of the whole plate is not possible since the results would be ruined" is somewhat unclear. It should specify why chemical development of the whole plate would ruin the results.** **The final paragraph is somewhat convoluted and could be simplified for better clarity.** **Paragraph 12: Applications of TLC** **Repetition: The paragraph is repeated multiple times throughout the article, causing redundancy and confusion (repeats in paragraphs 13, 14, and 15).** **Paragraph 13: Problem-Solving for TLC** **Lack of context: The paragraph discusses potential issues with TLC but lacks context and explanation, making it unclear (e.g., "On a TLC plate, compounds that are very basic or acidic (amines or carboxylic acids) may sometimes exhibit this behavior").** **Incomplete sentences: Some sentences are incomplete or lack subject-verb agreement, making them grammatically incorrect (e.g., "Make careful that nothing biological falls on the plate by mistake").** **Paragraph 14: Identification of Naphthodianthrones** **Repetition: This paragraph is repeated multiple times throughout the article, causing redundancy and confusion(repeats in paragraphs 15 and 16).** **Paragraph 15: Identification of Drugs: Caffeine Aspirin, Ibuprofen, and** **Repetition: Similar to the previous paragraph, this one is repeated multiple times throughout the article (repeats in paragraph 16).** **Grammar and wording: Some sentences lack clarity due to grammar and wording issues (e.g., "Caffeine may leave stains**	

	when exposed to UV light"). **Paragraph 16: By TLC Separation of Inorgan (Incomplete)** **Incomplete sentence: The paragraph seems to be incomplete and lacks proper context or explanation.**	

Review Form 1.7

Minor REVISION comments **1. Is language/English quality of the article suitable for scholarly communications?**	**1. Russian botanist Mikhail S. Tswett divided plant colour combinations into their individual pure components using a crude kind of chromatographic separation [1].** **Category: Grammar > Spelling** **Error type: Spelling** **Use “color” instead of “colour” depending on the English regional variant.** **Replacement suggestion: color** **2. Russian botanist Mikhail S. Tswett divided plant colour combinations into their individual pure components using a crude kind of chromatographic separation [1].** **Category: Readability > Determiner Error** **Error type: Redundancy** **The word “their” seems unnecessary.** **3. Russian botanist Mikhail S. Tswett divided plant colour combinations into their individual pure components using a crude kind of chromatographic separation [1].** **Category: Vocabulary > Noun/pronoun error** **Error type: Word Choice** **Replace “kind” with “type” if appropriate in this context.** **Replacement suggestion: type** **4. Writing is derived from the term chroma, which stands for colour.** **Category: Readability > Rephrase** **Error type: Rephrase** **Rephrase this portion for improved readability.** **Replacement suggestion: represents** **5. Writing is derived from the term chroma, which stands for colour.** **Category: Grammar > Spelling** **Error type: Spelling** **Use “color” instead of “colour” depending on the English regional variant.** **Replacement suggestion: color** **6. Russian botanist Mikhail S. Tswett used a rudimentary kind of chromatographic separation to separate plant colour combinations into their respective pure components[2].** **Category: Readability > Rephrase** **Error type: Rephrase**	

	Consider deleting “Russian botanist Mikhail S.” in this context. **7. Russian botanist Mikhail S. Tswett used a rudimentary kind of chromatographic separation to separate plant colour combinations into their respective pure components[2].** **Category: Readability > Rephrase** **Error type: Rephrase** **Rephrase this portion for readability.** **Replacement suggestion: rudimentary** **8. Russian botanist Mikhail S. Tswett used a rudimentary kind of chromatographic separation to separate plant colour combinations into their respective pure components[2].** **Category: Grammar > Spelling** **Error type: Spelling** **Use “color” instead of “colour” depending on the English regional variant.** **Replacement suggestion: color** **9. His research's main finding was that plant pigments separated into bands of their individual components when they travelled through the stationary during this procedure.** **Category: Readability > Rephrase** **Error type: Rephrase** **Consider deleting “research 's” in this context.** **10. His research's main finding was that plant pigments separated into bands of their individual components when they travelled through the stationary _during this procedure.** **Category: Readability > Noun/pronoun error** **Error type: Rephrase** **Insert “phase” here for clarity.** **Replacement suggestion: phase** **11. Both the stationary phase and the mobile phase are used in chromatography to separate the components.** **Category: Grammar > Article Usage** **Error type: Article Usage** **Delete the definite article before “stationary.”** **12. Both the stationary phase and the mobile phase are used in chromatography to separate the components.** **Category: Readability > Conciseness** **Error type: Conciseness**	

	Delete the noun “phase” to avoid repetition. **13. Both the stationary phase and the mobile phase are used in chromatography to separate the components.** **Category: Grammar > Article Usage** **Error type: Article Usage** **Delete the definite article before “mobile.”** **14. Both the stationary phase and the mobile phase are used in chromatography to separate the components.** **Category: Grammar > Noun singular-plural change** **Error type: Noun Number** **The plural form of “phase” should be used here.** **Replacement suggestion: phases** **15. Both the stationary phase and the mobile phase are used in chromatography to separate the components.** **Category: Grammar > Verb Form** **Error type: Tense Usage** **The verb “are” appears to be in the incorrect tense; revise it to “were.”** **Replacement suggestion: were** **16. the terms "chroma" and "graphy," which are used to describe colour and writing, respectively.** **Category: Readability > Verb Form** **Error type: Rephrase** **Consider deleting “are used to” in this context.** **17. the terms "chroma" and "graphy," which are used to describe colour and writing, respectively.** **Category: Grammar > Spelling** **Error type: Spelling** **Use “color” instead of “colour” depending on the English regional variant.** **Replacement suggestion: color** **18. Russian botanist Mikhail S. Tswett used a rudimentary kind of chromatographic separation to separate plant colour combinations into their respective pure components.** **Category: Readability > Rephrase** **Error type: Rephrase** **Rephrase this portion for readability.** **Replacement suggestion: rudimentary**	

	19. Russian botanist Mikhail S. Tswett used a rudimentary kind of chromatographic separation to separate plant colour combinations into their respective pure components. **Category: Grammar > Spelling** **Error type: Spelling** **Use “color” instead of “colour” depending on the English regional variant.** **Replacement suggestion: color** **20. I move my feet in a certain way.** **Category: Vocabulary > Noun/pronoun error** **Error type: Word Choice** **Replace “way” with “manner” if appropriate in this context.** **Replacement suggestion: manner** **21. Components in non-volatile mixtures may be separated using the chromatography method known as thin-layer chromatography (TLC)[3].** **Category: Grammar > Verb Form** **Error type: Tense Usage** **The verb “may” appears to be in the incorrect tense; revise it to “can.”** **Replacement suggestion: can** **22. Components in non-volatile mixtures may be separated using the chromatography method known as thin-layer chromatography (TLC)[3].** **Category: Grammar > Article Usage** **Error type: Article Usage** **Replace the definite article before “chromatography” with “a.”** **Replacement suggestion: a** **23. A thin coating of _adsorbent material is placed on top of a TLC plate constructed of a non-reactive solid.** **Category: Grammar > Article Usage** **Error type: Article Usage** **The definite article seems necessary before “adsorbent.”** **Replacement suggestion: the** **24. A thin coating of adsorbent material is placed on top of a TLC plate constructed of a non-reactive solid.** **Category: Grammar > Verb Form**	

	Error type: Tense Usage **The verb “is” appears to be in the incorrect tense; revise it to “was.”** **Replacement suggestion: was** **25. A thin coating of adsorbent material is placed on top of a TLC plate constructed of a non-reactive solid.** **Category: Grammar > Verb Form** **Error type: Verb Form** **Use “composed” instead of “constructed.”** **Replacement suggestion: composed** **26. The motionless phase is right now.** **Category: Readability > Rephrase** **Error type: Rephrase** **Rephrase this portion for readability.** **Replacement suggestion: now on the right-hand side** **27. A chromatography method used to separate mixtures is called thin layer chromatography (TLC).** **Category: Readability > Rephrase** **Error type: Rephrase** **Rewrite this by inserting “Thin-layer chromatography (TLC) is” here.** **Replacement suggestion: Thin-layer chromatography (TLC) is a** **28. A chromatography method used to separate mixtures is called thin layer chromatography (TLC).** **Category: Readability > Rephrase** **Error type: Rephrase** **Consider deleting “is called thin layer chromatography (TLC)” in this context.** **29. The stationary phase is the adsorbent layer in chromatography.** **Category: Grammar > Verb Form** **Error type: Tense Usage** **The verb “is” appears to be in the incorrect tense; revise it to “was.”** **Replacement suggestion: was** **30. The stationary phase is the adsorbent layer in chromatography.** **Category: Readability > Rephrase**	

	Error type: Rephrase **Rephrase this portion for readability.** **Replacement suggestion: used in the** **31. A solvent or _solvent combination (referred to as the mobile phase) is pulled up onto the plate by capillary action after the sample has been deposited on the plate.** **Category: Grammar > Article Usage** **Error type: Article Usage** **An indefinite article may be needed before “solvent.”** **Replacement suggestion: a** **32. M. Tswett developed capillary motion in 1906, which enables the solvent to transport the sample up the plate and cause separation depending on changes.** **Category: Readability > Noun/pronoun error** **Error type: Redundancy** **Consider deleting “M..”** **33. M. Tswett developed capillary motion in 1906, which enables the solvent to transport the sample up the plate and cause separation depending on changes.** **Category: Grammar > Verb Form** **Error type: Tense Usage** **The verb “enables” appears to be in the incorrect tense; revise it to “enabled.”** **Replacement suggestion: enabled** **34. A sheet of glass, plastic, or aluminium foil is coated with a thin coating of an adsorbent material to be used in thin-layer chromatography (blotter paper).** **Category: Grammar > Spelling** **Error type: Spelling** **Use “aluminum” instead of “aluminium” depending on the English regional variant.** **Replacement suggestion: aluminum** **35. A sheet of glass, plastic, or aluminium foil is coated with a thin coating of an adsorbent material to be used in thin-layer chromatography (blotter paper).** **Category: Grammar > Article Usage** **Error type: Article Usage** **Delete the indefinite article before “adsorbent.”**	

	36. A sheet of glass, plastic, or aluminium foil is coated with a thin coating of an adsorbent material to be used in thin-layer chromatography (blotter paper). **Category: Readability > Rephrase** **Error type: Rephrase** **Rephrase this portion for readability.** **Replacement suggestion: for use** **37. Often, cellulose, aluminium oxide, or silica gel are used to create this product.)** **Category: Readability > Rephrase** **Error type: Rephrase** **Consider deleting “Often ,” here.** **Replacement suggestion: Cellulose** **38. Often, cellulose, aluminium oxide, or silica gel are used to create this product.)** **Category: Grammar > Spelling** **Error type: Spelling** **Use “aluminum” instead of “aluminium” depending on the English regional variant.** **Replacement suggestion: aluminum** **39. Often, cellulose, aluminium oxide, or silica gel are _used to create this product.)** **Category: Readability > Adverb usage** **Error type: Rephrase** **To improve readability, insert “often” here.** **Replacement suggestion: often** **40. differences [4] in the molecules' polarity, size, and other chemical properties.** **Category: Readability > Rephrase** **Error type: Rephrase** **Rephrase this portion for readability.** **Replacement suggestion: in polarity, size, and other chemical properties of the molecules [4]** **41. Following _removal and drying of the plate, the separated materials may be seen using a number of detection methods, such as UV light, iodine vapour, or specific chemical reagents.** **Category: Grammar > Article Usage** **Error type: Article Usage** **The definite article seems necessary before “removal.”**	

	Replacement suggestion: the **42. Following removal and drying of the plate, the separated materials may be seen using a number of detection methods, such as UV light, iodine vapour, or specific chemical reagents.** **Category: Grammar > Verb Form** **Error type: Verb Form** **Use “observed” instead of “seen.”** **Replacement suggestion: observed** **43. Following removal and drying of the plate, the separated materials may be seen using a number of detection methods, such as UV light, iodine vapour, or specific chemical reagents.** **Category: Grammar > Spelling** **Error type: Spelling** **Use “vapor” instead of “vapour” depending on the English regional variant.** **Replacement suggestion: vapor** **44. This is helpful for qualitative analysis since it enables the identification of specific chemicals and the quantification of the purity of those molecules.** **Category: Grammar > Prepositions** **Error type: Preposition Usage** **Use “because” instead of “since” in this context.** **Replacement suggestion: because** **45. This is helpful for qualitative analysis since it enables the identification of specific chemicals and the quantification of the purity of those molecules.** **Category: Grammar > Determiner Error** **Error type: Determiner Error** **The word “these” may be more suitable than “those” here.** **Replacement suggestion: these** **46. This rapid and inexpensive technique is used at research centres by, among others, the pharmaceutical and food sciences industries.** **Category: Grammar > Spelling** **Error type: Spelling** **Use “centers” instead of “centres” depending on the English regional variant.** **Replacement suggestion: centers**	

	47. This rapid and inexpensive technique is used at research centres by, among others, the pharmaceutical and food sciences industries. **Category: Readability > Rephrase** **Error type: Rephrase** **Rephrase this portion for readability.** **Replacement suggestion: the pharmaceutical and food sciences industries, among others** **48. on differences in the molecules' polarity, size, and other chemical properties.** **Category: Readability > Word Order** **Error type: Rephrase** **Rewrite this as "the differences in" for improved readability.** **Replacement suggestion: the differences in** **49. on differences in the molecules' polarity, size, and other chemical properties.** **Category: Readability > Rephrase** **Error type: Rephrase** **Rephrase this portion for readability.** **Replacement suggestion: polarity, size, and other chemical properties of the molecules** **50. Following _removal and drying of the plate, the separated materials may be seen using a number of detection methods, such as UV light, iodine vapour, or specific chemical reagents.** **Category: Grammar > Article Usage** **Error type: Article Usage** **The definite article seems necessary before "removal."** **Replacement suggestion: the** **51. Following removal and drying of the plate, the separated materials may be seen using a number of detection methods, such as UV light, iodine vapour, or specific chemical reagents.** **Category: Grammar > Verb Form** **Error type: Verb Form** **Use "observed" instead of "seen."** **Replacement suggestion: observed** **52. Following removal and drying of the plate, the separated materials may be seen using a number of detection methods, such as UV light, iodine vapour, or specific chemical reagents.** **Category: Grammar > Spelling**	

	Error type: Spelling **Use “vapor” instead of “vapour” depending on the English regional variant.** **Replacement suggestion: vapor** **53. This is helpful for qualitative analysis since it enables the identification of specific chemicals and the quantification of the purity of those molecules.** **Category: Grammar > Prepositions** **Error type: Preposition Usage** **Use “because” instead of “since” in this context.** **Replacement suggestion: because** **54. This is helpful for qualitative analysis since it enables the identification of specific chemicals and the quantification of the purity of those molecules.** **Category: Grammar > Determiner Error** **Error type: Determiner Error** **The word “these” may be more suitable than “those” here.** **Replacement suggestion: these** **55. This rapid and inexpensive technique is used at research centres by, among others, the pharmaceutical and food sciences industries [6].** **Category: Grammar > Spelling** **Error type: Spelling** **Use “centers” instead of “centres” depending on the English regional variant.** **Replacement suggestion: centers** **56. This rapid and inexpensive technique is used at research centres by, among others, the pharmaceutical and food sciences industries [6].** **Category: Readability > Rephrase** **Error type: Rephrase** **Rephrase this portion for readability.** **Replacement suggestion: the pharmaceutical and food sciences industries, among others** **57. TLC is based on the idea that molecules move through a stationary phase at varying rates while being transported by a mobile phase, which is often a solvent (normally a thin layer of adsorbent material, such as silica gel).** **Category: Vocabulary > Adverb usage** **Error type: Word Choice** **The word “typically” may be more suitable here.**	

	Replacement suggestion: typically **58. TLC requires substances that stick to the stationary phase's surface.** **Category: Grammar > Verb Form** **Error type: Verb Form** **Use “adhere” instead of “stick.”** **Replacement suggestion: adhere** **59. TLC requires substances that stick to the stationary phase's surface.** **Category: Readability > Rephrase** **Error type: Rephrase** **Rephrase this portion for readability.** **Replacement suggestion: the surface of the stationary phase** **60. Depending on the compounds' affinities for the stationary phase, different compounds migrate through the chromatographic process at different speeds.** **Category: Readability > Rephrase** **Error type: Rephrase** **Rephrase this portion for readability.** **Replacement suggestion: affinities of the compounds in** **61. Depending on the compounds' affinities for the stationary phase, different compounds migrate through the chromatographic process at different speeds.** **Category: Vocabulary > Noun/pronoun error** **Error type: Word Choice** **Replace “speeds” with “rates” if appropriate in this context.** **Replacement suggestion: rates** **62. The stationary phase seems to be divided at the bottom [7].** **Category: Grammar > Verb Form** **Error type: Verb Form** **The verb usage seems incorrect; use “is” instead.** **Replacement suggestion: is** **63. Following that, the plate is put in a container with some solvent (the mobile phase).** **Category: Readability > Rephrase**	

	Error type: Rephrase **Consider deleting “Following that ,” here.** **Replacement suggestion: The** **64. Following that, the plate is put in a container with some solvent (the mobile phase).** **Category: Readability > Rephrase** **Error type: Rephrase** **Rephrase this portion for improved readability.** **Replacement suggestion: was then placed** **65. Following that, the plate is put in a container with some solvent (the mobile phase).** **Category: Grammar > Determiner Error** **Error type: Determiner Error** **Replace “some” with “a” here.** **Replacement suggestion: a** **66. Following that, the plate is put in a container with some solvent (the mobile phase).** **Category: Grammar > Article Usage** **Error type: Article Usage** **Delete the definite article before “mobile.”** **67. The solvent raises the sample of the plate due to capillary action.** **Category: Vocabulary > Vocabulary** **Error type: Word Choice** **Use “owing” instead of “due” in this context.** **Replacement suggestion: owing** **68. The chemicals are moved up the plate as the solvent passes through the mixture.** **Category: Grammar > Verb Form** **Error type: Tense Usage** **The verb “are” appears to be in the incorrect tense; revise it to “were.”** **Replacement suggestion: were** **69. The chemicals are moved up the plate as the solvent passes through the mixture.** **Category: Grammar > Verb Form**	

	Error type: Tense Usage **The verb “passes” appears to be in the incorrect tense; revise it to “was passed.”** **Replacement suggestion: was passed** **70. With the stationary phase, various substances will respond differently and move at varying rates.** **Category: Grammar > Prepositions** **Error type: Preposition Usage** **Use “In” instead of “With” in this context.** **Replacement suggestion: In** **71. With the stationary phase, various substances will respond differently and move at varying rates.** **Category: Readability > Verb Form** **Error type: Rephrase** **Delete “will” before the verb “respond.”** **72. With the stationary phase, various substances will respond differently and move at varying rates.** **Category: Vocabulary > Adjective usage** **Error type: Word Choice** **The word “different” may be more suitable than “varying.”** **Replacement suggestion: different** **73. As a result, the compounds separate along the plate's length.** **Category: Readability > Rephrase** **Error type: Rephrase** **Rephrase this portion for improved readability.** **Replacement suggestion: Consequently** **74. As a result, the compounds _separate along the plate's length.** **Category: Grammar > Verb Form** **Error type: Verb Form** **Insert “were” before “separate” if appropriate.** **Replacement suggestion: were** **75. As a result, the compounds separate along the plate's length.** **Category: Grammar > Verb Form**	

	Error type: Verb Form **The verb usage seems incorrect; use “separated” instead.** **Replacement suggestion: separated** **76. As a result, the compounds separate along the plate's length.** **Category: Grammar > Possessives** **Error type: Possessives** **Use “plate” instead of the possessive.** **77. The TLC plate is normally dried once the separation is finished before being inspected.** **Category: Grammar > Article Usage** **Error type: Article Usage** **Delete the definite article before “separation.”** **78. The TLC plate is normally dried once the separation is finished before being inspected.** **Category: Readability > Rephrase** **Error type: Rephrase** **Rephrase this portion for readability.** **Replacement suggestion: completed before inspection** **79. This is often accomplished by injecting chemicals, shining UV light over the plate, or just seeing the marks that the separated components have left behind[8].** **Category: Vocabulary > Adverb usage** **Error type: Word Choice** **The word “simply” may be more suitable here.** **Replacement suggestion: simply** **80. The distance that each compound has travelled may be calculated using the Rf (retention factor) value [9].** **Category: Readability > Rephrase** **Error type: Rephrase** **Rephrase this portion for readability.** **Replacement suggestion: traveled by each compound can** **81. The distance that each compound has travelled may be calculated using the Rf (retention factor) value [9].** **Category: Readability > Word Order**	

	Error type: Rephrase **Rewrite this as “retention factor (Rf” for improved readability.** **Replacement suggestion: retention factor (Rf** **82. The Rf values of the separated chemicals may be compared to accepted standards or literature values to identify the mixture's constituents [10].** **Category: Grammar > Verb Form** **Error type: Tense Usage** **The verb “may” appears to be in the incorrect tense; revise it to “can.”** **Replacement suggestion: can** **83. The Rf values of the separated chemicals may be compared to accepted standards or literature values to identify the mixture's constituents [10].** **Category: Readability > Rephrase** **Error type: Rephrase** **Rephrase this portion for readability.** **Replacement suggestion: constituents of the mixture** **84. With the proper calibration, TLC may be used for both qualitative and quantitative analysis, making it a versatile and quick procedure.** **Category: Grammar > Article Usage** **Error type: Article Usage** **Delete the definite article before “proper.”** **85. With the proper calibration, TLC may be used for both qualitative and quantitative analysis, making it a versatile and quick procedure.** **Category: Grammar > Verb Form** **Error type: Tense Usage** **The verb “may” appears to be in the incorrect tense; revise it to “can.”** **Replacement suggestion: can** **86. With the proper calibration, TLC may be used for both qualitative and quantitative analysis, making it a versatile and quick procedure.** **Category: Grammar > Noun singular-plural change** **Error type: Noun Number** **The plural form of “analysis” should be used here.** **Replacement suggestion: analyses**	

	87. It often serves a range of functions in the fields of chemistry, biochemistry, and pharmacology, including determining the purity of compounds, monitoring chemical processes, and determining the constituent parts of combinations. **Category: Grammar > Subject-Verb Agreement** **Error type: Subject-Verb Agreement** **Change the subject “It” to correspond with “serves” in terms of person.** **Replacement suggestion: They** **88. It often serves a range of functions in the fields of chemistry, biochemistry, and pharmacology, including determining the purity of compounds, monitoring chemical processes, and determining the constituent parts of combinations.** **Category: Grammar > Subject-Verb Agreement** **Error type: Subject-Verb Agreement** **The verb (“serves”) does not seem to agree with the subject in number.** **Replacement suggestion: serve** **89. Less than 1 Rf value Because _Rf values measure the ratios of solut e (analyte) migration lengths to solvent fronts, they can never be more than one [11].** **Category: Grammar > Article Usage** **Error type: Article Usage** **The definite article seems necessary before “Rf.”** **Replacement suggestion: the** **90. Less than 1 Rf value Because Rf values measure the ratios of solut e (analyte) migration lengths to solvent fronts, they can never be more than one [11].** **Category: Grammar > Spelling** **Error type: Spelling** **The word “solut” is not in our database; did you mean “solute”?** **Replacement suggestion: solute** **91. Because solutes need stationary phases to exhibit certain required qualities, the solvent front always travels more slowly than the solute front.** **Category: Readability > Rephrase** **Error type: Rephrase** **Rephrase this portion for readability.** **Replacement suggestion: require stationary phases to exhibit certain** **92. By dividing the spot's travel distance by the solvent's travel distance, RF is computed.**	

	Category: Readability > Rephrase **Error type: Rephrase** **Rewrite this by inserting “The RF is computed” here.** **Replacement suggestion: The RF is computed by** **93. By dividing the spot's travel distance by the solvent's travel distance, RF is computed.** **Category: Readability > Rephrase** **Error type: Rephrase** **Rephrase this portion for readability.** **Replacement suggestion: travel distance of the spot** **94. By dividing the spot's travel distance by the solvent's travel distance, RF is computed.** **Category: Readability > Rephrase** **Error type: Rephrase** **Rephrase this portion for readability.** **Replacement suggestion: travel distance of the solvent** **95. The Rf value only stays constant when all experimental circumstances are the same for each component.** **Category: Readability > Rephrase** **Error type: Rephrase** **Rephrase this portion for improved readability.** **Replacement suggestion: remained** **96. The Rf value only stays constant when all _experimental circumstances are the same for each component.** **Category: Grammar > Article Usage** **Error type: Article Usage** **The definite article seems necessary before “experimental.”** **Replacement suggestion: the** **97. The Rf value only stays constant when all experimental circumstances are the same for each component.** **Category: Grammar > Verb Form** **Error type: Tense Usage** **The verb “are” appears to be in the incorrect tense; revise it to “were.”** **Replacement suggestion: were**	

	98. The term "adsorbent" describes the solid substance that is applied in a thin layer on a flat substrate, such as a glass or plastic plate, in thin-layer chromatography (TLC). **Category: Grammar > Article Usage** **Error type: Article Usage** **Replace the definite article before “solid” with “a.”** **Replacement suggestion: a** **99. Typically, this adsorbent is made of a material like silica gel or alumina.** **Category: Readability > Rephrase** **Error type: Rephrase** **Rephrase this portion for improved readability.** **Replacement suggestion: such as** **100. How the different components of the sample separate depends on the sample's characteristics, notably the particle size and chemical makeup [13].** **Category: Readability > Rephrase** **Error type: Rephrase** **Consider deleting “How” here.** **Replacement suggestion: The** **101. How the different components of the sample separate depends on the sample's characteristics, notably the particle size and chemical makeup [13].** **Category: Readability > Rephrase** **Error type: Rephrase** **Rephrase this portion for readability.** **Replacement suggestion: depend** **102. How the different components of the sample separate depends on the sample's characteristics, notably the particle size and chemical makeup [13].** **Category: Readability > Rephrase** **Error type: Rephrase** **Rephrase this portion for readability.** **Replacement suggestion: characteristics of the sample** **103. As the sample molecules pass over the TLC plate, the adsorbent interacts with them, causing them to segregate depending on how well they stick to it and the mobile phase.** **Category: Grammar > Verb Form**	

	Error type: Verb Form **Use “adhere” instead of “stick.”** **Replacement suggestion: adhere** **104. Depending on the particular separation needs of the experiment, a variety of adsorbents may be utilised.** **Category: Vocabulary > Noun/pronoun error** **Error type: Word Choice** **Replace “needs” with “requirements” if appropriate in this context.** **Replacement suggestion: requirements** **105. Depending on the particular separation needs of the experiment, a variety of adsorbents may be utilised.** **Category: Grammar > Spelling** **Error type: Spelling** **Use “utilized” instead of “utilised” depending on the English regional variant.** **Replacement suggestion: utilized** **106. A natural polysaccharide called cellulose may be employed as an adsorbent in TLC[13] .** **Category: Readability > Rephrase** **Error type: Rephrase** **Rephrase this portion for improved readability.** **Replacement suggestion: , can** **107. Since it may be derived to create chiral stationary phases, it is very helpful for separating chiral chemicals.** **Category: Grammar > Prepositions** **Error type: Preposition Usage** **Use “Because” instead of “Since” in this context.** **Replacement suggestion: Because** **108. Since it may be derived to create chiral stationary phases, it is very helpful for separating chiral chemicals.** **Category: Readability > Pronouns** **Error type: Rephrase** **Use “they” instead of “it” in this context.** **Replacement suggestion: they**	

	109. Since it may be derived to create chiral stationary phases, it is very helpful for separating chiral chemicals. **Category: Readability > Pronouns** **Error type: Rephrase** **Use “they” instead of “it” in this context.** **Replacement suggestion: they** **110. Since it may be derived to create chiral stationary phases, it is very helpful for separating chiral chemicals.** **Category: Grammar > Subject-Verb Agreement** **Error type: Subject-Verb Agreement** **The verb (“is”) does not seem to agree with the subject in number.** **Replacement suggestion: are** **111. A non-polar adsorbent used to separate non-polar or hydrophobic chemicals is reverse-phase silica.** **Category: Readability > Rephrase** **Error type: Rephrase** **Rewrite this by inserting “Reverse-phase silica is” here.** **Replacement suggestion: Reverse-phase silica is a** **112. A non-polar adsorbent used to separate non-polar or hydrophobic chemicals is reverse-phase silica.** **Category: Readability > Rephrase** **Error type: Rephrase** **Consider deleting “is reverse-phase silica” in this context.** **113. Certain TLC plates have fluorescent chemicals added to them that make it simpler to see separated molecules under UV light [14].** **Category: Grammar > Verb Form** **Error type: Verb Form** **Use “contain” instead of “have.”** **Replacement suggestion: contain** **114. Certain TLC plates have fluorescent chemicals added to them that make it simpler to see separated molecules under UV light [14].** **Category: Grammar > Verb Form** **Error type: Verb Form** **Use “observe” instead of “see.”** **Replacement suggestion: observe**	

	115. When choosing the best adsorbent, the kind of chemicals being separated and the suitable separation conditions will be taken into account. **Category: Vocabulary > Noun/pronoun error** **Error type: Word Choice** **Replace “kind” with “types” if appropriate in this context.** **Replacement suggestion: types** **116. When choosing the best adsorbent, the kind of chemicals being separated and the suitable separation conditions will be taken into account.** **Category: Readability > Rephrase** **Error type: Rephrase** **Rephrase this portion for readability.** **Replacement suggestion: are considered** **117. While non-polar adsorbents like RP silica are better at sorting out non-polar molecules, polar adsorbents like silica gel and others like them tend to interact better with polar compounds [15].** **Category: Readability > Rephrase** **Error type: Rephrase** **Rephrase this portion for improved readability.** **Replacement suggestion: such as** **118. While non-polar adsorbents like RP silica are better at sorting out non-polar molecules, polar adsorbents like silica gel and others like them tend to interact better with polar compounds [15].** **Category: Readability > Rephrase** **Error type: Rephrase** **Rephrase this portion for improved readability.** **Replacement suggestion: such as** **119. While non-polar adsorbents like RP silica are better at sorting out non-polar molecules, polar adsorbents like silica gel and others like them tend to interact better with polar compounds [15].** **Category: Readability > Rephrase** **Error type: Rephrase** **Consider deleting “like them” in this context.** **120. The solvent system and the breadth of the adsorbent layer both affect the TLC separation procedure.** **Category: Readability > Conciseness**	

	Error type: Conciseness **Delete the article “the” to avoid repetition.** **121. The solvent system and the breadth of the adsorbent layer both affect the TLC separation procedure.** **Category: Readability > Rephrase** **Error type: Rephrase** **Rephrase this portion for readability.** **Replacement suggestion: affected** **122. For the mobile phase, the appropriate solvent must be employed.** **Category: Readability > Rephrase** **Error type: Rephrase** **Rephrase this portion for readability.** **Replacement suggestion: An appropriate solvent must be used for the mobile phase** **123. To properly separate the compounds in the sample, it must be suitable for the chemical composition of the sample and have the proper polarity [16].** **Category: Grammar > Article Usage** **Error type: Article Usage** **Delete the definite article before “proper.”** **124. If any of the solvents are very volatile or hygroscopic, a fresh batch of solvents must be made for every Run.** **Category: Grammar > Verb Form** **Error type: Verb Form** **Use “prepared” instead of “made.”** **Replacement suggestion: prepared** **125. How molecules may be viewed and analysed on the TLC plate depends on the mobility and segregation of compounds caused by the properties of the mobile phase.** **Category: Readability > Rephrase** **Error type: Rephrase** **Rephrase this portion for readability.** **Replacement suggestion: The manner in which** **126. How molecules may be viewed and analysed on the TLC plate depends on the mobility and segregation of compounds caused by the properties of the mobile phase.** **Category: Grammar > Verb Form**	

	Error type: Tense Usage **The verb “may” appears to be in the incorrect tense; revise it to “can.”** **Replacement suggestion: can** **127. How molecules may be viewed and analysed on the TLC plate depends on the mobility and segregation of compounds caused by the properties of the mobile phase.** **Category: Grammar > Spelling** **Error type: Spelling** **Use “analyzed” instead of “analysed” depending on the English regional variant.** **Replacement suggestion: analyzed** **128. These components include the solvent's polarity, make-up, and preference.** **Category: Grammar > Article Usage** **Error type: Article Usage** **Delete the definite article before “solvent.”** **129. These components include the solvent's polarity, make-up, and preference.** **Category: Grammar > Possessives** **Error type: Possessives** **Use “solvent” instead of the possessive.** **130. The mobile phase's characteristics have an impact on the compound migration and separation on the TLC plate, which allows for compound visualisation and analysis.** **Category: Readability > Rephrase** **Error type: Rephrase** **Rephrase this portion for readability.** **Replacement suggestion: characteristics of the mobile phase affect** **131. The mobile phase's characteristics have an impact on the compound migration and separation on the TLC plate, which allows for compound visualisation and analysis.** **Category: Grammar > Spelling** **Error type: Spelling** **Use “visualization” instead of “visualisation” depending on the English regional variant.** **Replacement suggestion: visualization** **132. Distinct compounds have different interactions with the mobile phase, which causes them to move on the plate at**	

	various speeds and facilitates separation [19]. **Category: Readability > Rephrase** **Error type: Rephrase** **Rephrase this portion for readability.** **Replacement suggestion: interact differently** **133. As a result of diverse chemical reactions during TLC, the rates of migration and separation may change [20].** **Category: Readability > Rephrase** **Error type: Rephrase** **Rewrite this by inserting “The rates of migration and separation may change” here.** **Replacement suggestion: The rates of migration and separation may change as** **134. As a result of diverse chemical reactions during TLC, the rates of migration and separation may change [20].** **Category: Readability > Rephrase** **Error type: Rephrase** **Consider deleting “, the rates of migration and separation may change” in this context.** **135. Typically plates The appropriate layer thickness is around 250 micrometres.** **Category: Grammar > Verb Form** **Error type: Tense Usage** **The verb “is” appears to be in the incorrect tense; revise it to “was.”** **Replacement suggestion: was** **136. Typically plates The appropriate layer thickness is around 250 micrometres.** **Category: Vocabulary > Vocabulary** **Error type: Word Choice** **Use “approximately” instead of “around” in this context.** **Replacement suggestion: approximately** **137. Typically plates The appropriate layer thickness is around 250 micrometres.** **Category: Vocabulary > Noun/pronoun error** **Error type: Word Choice** **Replace “micrometres” with “µm” if appropriate in this context.** **Replacement suggestion: µm**	

	138. The R Values have a wide range below 200. **Category: Grammar > Verb Form** **Error type: Tense Usage** **The verb “have” appears to be in the incorrect tense; revise it to “had.”** **Replacement suggestion: had** **139. The efficacy of separation and the pace at which chemicals move through the layer are both impacted by the thickness of the stationary phase, which is generally a thin layer of adsorbent material on a solid support [20].** **Category: Readability > Rephrase** **Error type: Rephrase** **Rephrase this portion for improved readability.** **Replacement suggestion: affected** **140. Although the process can take longer as a result, thicker layers might result in slower migration and better compound separation.** **Category: Grammar > Determiner Error** **Error type: Determiner Error** **Replace “the” with “this” here.** **Replacement suggestion: this** **141. Although the process can take longer as a result, thicker layers might result in slower migration and better compound separation.** **Category: Readability > Rephrase** **Error type: Rephrase** **Consider deleting “as a result” in this context.** **142. Although the process can take longer as a result, thicker layers might result in slower migration and better compound separation.** **Category: Grammar > Verb Form** **Error type: Tense Usage** **The verb “might” appears to be in the incorrect tense; revise it to “may.”** **Replacement suggestion: may** **143. Although thinner layers could hasten migration, separation might suffer.** **Category: Grammar > Verb Form** **Error type: Tense Usage** **The verb “could” appears to be in the incorrect tense; revise it to “can.”**	

	Replacement suggestion: can **144. Although thinner layers could hasten migration, separation might suffer.** **Category: Readability > Rephrase** **Error type: Rephrase** **Rephrase this portion for readability.** **Replacement suggestion: may occur** **145. Additional variables affecting TLC outcomes include _development distance, solvent concentration, and mobile phase thickness [21].** **Category: Grammar > Article Usage** **Error type: Article Usage** **The definite article seems necessary before “development.”** **Replacement suggestion: the** **146. The procedure may take longer as a consequence of the thicker layers, which may lead to slower migration and better compound separation.** **Category: Grammar > Determiner Error** **Error type: Determiner Error** **Replace “The” with “This” here.** **Replacement suggestion: This** **147. The procedure may take longer as a consequence of the thicker layers, which may lead to slower migration and better compound separation.** **Category: Readability > Rephrase** **Error type: Rephrase** **Rephrase this portion for improved readability.** **Replacement suggestion: because** **148. Although separation may suffer, faster migration may be obtained with thinner layers.** **Category: Grammar > Verb Form** **Error type: Verb Form** **Use “occur” instead of “suffer.”** **Replacement suggestion: occur** **149. Although separation may suffer, faster migration may be obtained with thinner layers.**	

	Category: Grammar > Verb Form **Error type: Verb Form** **Use “achieved” instead of “obtained.”** **Replacement suggestion: achieved** **150. The development distance, solvent concentration, and mobile phase thickness are further factors influencing TLC results [22].** **Category: Vocabulary > Adjective usage** **Error type: Word Choice** **The word “other” may be more suitable than “further.”** **Replacement suggestion: other** **151. The development distance, solvent concentration, and mobile phase thickness are further factors _influencing TLC results [22].** **Category: Readability > Determiner Error** **Error type: Rephrase** **Insert “that” after “factors.”** **Replacement suggestion: that** **152. The development distance, solvent concentration, and mobile phase thickness are further factors influencing TLC results [22].** **Category: Grammar > Verb Form** **Error type: Verb Form** **The verb usage seems incorrect; use “influence” instead.** **Replacement suggestion: influence** **153. The development distance, solvent concentration, and mobile phase thickness are further factors influencing _TLC results [22].** **Category: Grammar > Article Usage** **Error type: Article Usage** **The definite article seems necessary before “TLC.”** **Replacement suggestion: the** **154. The ratio of the tank's dimensions to those of the TLC plate may affect the separation's quality.** **Category: Grammar > Possessives** **Error type: Possessives**	

	Use “tank” instead of the possessive. **155. The ratio of the tank's dimensions to those of the TLC plate may affect the separation's quality.** **Category: Readability > Rephrase** **Error type: Rephrase** **Rephrase this portion for readability.** **Replacement suggestion: quality of separation** **156. More even development may be attained with a larger tank.** **Category: Grammar > Article Usage** **Error type: Article Usage** **An indefinite article may be needed before “more.”** **Replacement suggestion: A more** **157. Using little tanks is the most efficient method to do this.** **Category: Readability > Rephrase** **Error type: Rephrase** **Rephrase this portion for improved readability.** **Replacement suggestion: The use of small** **158. Using little tanks is the most efficient method to do this.** **Category: Readability > Rephrase** **Error type: Rephrase** **Rephrase this portion for readability.** **Replacement suggestion: achieve this goal** **159. Use filter paper liners, and enough solvent, and wait at least 30 minutes after the tank has equilibrated before running the plates.** **Category: Vocabulary > Adjective usage** **Error type: Word Choice** **The word “sufficient” may be more suitable than “enough.”** **Replacement suggestion: sufficient** **160. The brightness and clarity of the picture are influenced by the length of the exposure to light.** **Category: Grammar > Article Usage** **Error type: Article Usage**	

	Replace the definite article before “picture” with “a.” **Replacement suggestion: a** **161. The brightness and clarity of the picture are influenced by the length of the exposure to light.** **Category: Grammar > Article Usage** **Error type: Article Usage** **Delete the definite article before “exposure.”** **162. The final picture may be impacted by the development and processing of photographic materials, including the chemicals employed and their temperature [23] .** **Category: Grammar > Verb Form** **Error type: Verb Form** **Use “affected” instead of “impacted.”** **Replacement suggestion: affected** **163. A larger sample mass may produce more intense spots, which can make them simpler to detect and quantify when you develop the TLC plate and visualise the separated compounds (often using UV light or chemical reagents) [24].** **Category: Readability > Pronouns** **Error type: Conciseness** **Consider deleting “you.”** **164. A larger sample mass may produce more intense spots, which can make them simpler to detect and quantify when you develop the TLC plate and visualise the separated compounds (often using UV light or chemical reagents) [24].** **Category: Grammar > Verb Form** **Error type: Verb Form** **The verb usage seems incorrect; use “developing” instead.** **Replacement suggestion: developing** **165. A larger sample mass may produce more intense spots, which can make them simpler to detect and quantify when you develop the TLC plate and visualise the separated compounds (often using UV light or chemical reagents) [24].** **Category: Vocabulary > Word usage** **Error type: Word Choice** **The word “visualizing” may be more suitable here.** **Replacement suggestion: visualizing** **166. The bulk of the sample in _quantitative TLC may impact how sensitive the analysis is.** **Category: Grammar > Article Usage**	

	Error type: Article Usage **The definite article seems necessary before “quantitative.”** **Replacement suggestion: the** **167. The bulk of the sample in quantitative TLC may impact how sensitive the analysis is.** **Category: Readability > Rephrase** **Error type: Rephrase** **Rephrase this portion for readability.** **Replacement suggestion: affect the sensitivity** **168. The bulk of the sample in quantitative TLC may impact how sensitive the analysis is.** **Category: Readability > Rephrase** **Error type: Rephrase** **Rephrase this portion for readability.** **Replacement suggestion: of the analysis** **169. Less intense spots may arise from smaller masses, making it more difficult to _determine the compound's amount with precision.** **Category: Readability > Adverb usage** **Error type: Rephrase** **To improve readability, insert “precisely” here.** **Replacement suggestion: precisely** **170. Less intense spots may arise from smaller masses, making it more difficult to determine the compound's amount with precision.** **Category: Readability > Rephrase** **Error type: Rephrase** **Rephrase this portion for readability.** **Replacement suggestion: amount of compound** **171. When putting a sample on a TLC plate, it's crucial to maintain equilibrium.** **Category: Grammar > Verb Form** **Error type: Verb Form** **Use “placing” instead of “putting.”** **Replacement suggestion: placing**	

	172. When putting a sample on a TLC plate, it's crucial to maintain _equilibrium. **Category: Grammar > Article Usage** **Error type: Article Usage** **The definite article seems necessary before “equilibrium.”** **Replacement suggestion: the** **173. The ideal mass to utilise allows for detection but isn't too big to interfere with separation and resolution.** **Category: Grammar > Spelling** **Error type: Spelling** **Use “utilize” instead of “utilise” depending on the English regional variant.** **Replacement suggestion: utilize** **174. The ideal mass to utilise allows for detection but isn't too big to interfere with separation and resolution.** **Category: Vocabulary > Adjective usage** **Error type: Word Choice** **The word “large” may be more suitable than “big.”** **Replacement suggestion: large** **175. The type of the substances being tested and the sensitivity of the detection technology utilised will determine the sample's precise mass [25].** **Category: Grammar > Article Usage** **Error type: Article Usage** **Delete the definite article before “substances.”** **176. The type of the substances being tested and the sensitivity of the detection technology utilised will determine the sample's precise mass [25].** **Category: Grammar > Verb Form** **Error type: Verb Form** **Use “used” instead of “utilised will.”** **Replacement suggestion: used** **177. The type of the substances being tested and the sensitivity of the detection technology utilised will determine the sample's precise mass [25].** **Category: Readability > Rephrase** **Error type: Rephrase**	

	Rephrase this portion for readability. **Replacement suggestion: precise mass of the sample** **178. Before usage, a TLC plate has to be well-cleaned.** **Category: Vocabulary > Word usage** **Error type: Word Choice** **The word “use” may be more suitable here.** **Replacement suggestion: use** **179. Before usage, a TLC plate has to be well-cleaned.** **Category: Grammar > Article Usage** **Error type: Article Usage** **Replace the indefinite article before “TLC” with “the.”** **Replacement suggestion: the** **180. Before usage, a TLC plate has to be well-cleaned.** **Category: Readability > Rephrase** **Error type: Rephrase** **Rephrase this portion for readability.** **Replacement suggestion: must be cleaned well** **181. To do this, thoroughly clean the substance by washing it in a suitable solvent, such as acetone or methanol, to eliminate any impurities or pollutants.** **Category: Readability > Rephrase** **Error type: Rephrase** **Rephrase this portion for readability.** **Replacement suggestion: the substance was thoroughly cleaned** **182. At the base of the TLC plate, a baseline should be created with a pencil approximately 1 cm away.** **Category: Grammar > Verb Form** **Error type: Verb Form** **Use “was” instead of “should be.”** **Replacement suggestion: was** **183. At the base of the TLC plate, a baseline should be created with a pencil approximately 1 cm away.** **Category: Vocabulary > Vocabulary**	

	Error type: Word Choice **Use “using” instead of “with” in this context.** **Replacement suggestion: using** **184. Verify that the route is clear and symmetrical.** **Category: Readability > Rephrase** **Error type: Rephrase** **Rephrase this portion for improved readability.** **Replacement suggestion: We verified** **185. These are made by combining water with an adsorbent, such as silica gel, and a tiny quantity of inert binders, like calcium sulphate (gypsum).** **Category: Readability > Pronouns** **Error type: Rephrase** **Use “They” instead of “These” in this context.** **Replacement suggestion: They** **186. These are made by combining water with an adsorbent, such as silica gel, and a tiny quantity of inert binders, like calcium sulphate (gypsum).** **Category: Vocabulary > Adjective usage** **Error type: Word Choice** **The word “small” may be more suitable than “tiny.”** **Replacement suggestion: small** **187. These are made by combining water with an adsorbent, such as silica gel, and a tiny quantity of inert binders, like calcium sulphate (gypsum).** **Category: Readability > Rephrase** **Error type: Rephrase** **Rephrase this portion for improved readability.** **Replacement suggestion: such as** **188. These are made by combining water with an adsorbent, such as silica gel, and a tiny quantity of inert binders, like calcium sulphate (gypsum).** **Category: Grammar > Spelling** **Error type: Spelling** **Use “sulfate” instead of “sulphate” depending on the English regional variant.**	

	Replacement suggestion: sulfate **189. Thick metal foil, thick glass, and plastic sheets are the three materials that are most often used as carriers on nonreactive surfaces [26].** **Category: Readability > Rephrase** **Error type: Rephrase** **Consider deleting “that are” in this context.** **190. The finished plate is baked in an oven for 30 minutes at 110 °C to dry and activate it.** **Category: Grammar > Verb Form** **Error type: Tense Usage** **The verb “is” appears to be in the incorrect tense; revise it to “was.”** **Replacement suggestion: was** **191. TLC spotters are made using glass capillary tubes, which may be purchased from the majority of chemical or glassware providers.** **Category: Grammar > Verb Form** **Error type: Tense Usage** **The verb “may” appears to be in the incorrect tense; revise it to “can.”** **Replacement suggestion: can** **192. A capillary tube with two open ends may be used to make two TLC spotters.** **Category: Grammar > Verb Form** **Error type: Verb Form** **Use “was” instead of “may be.”** **Replacement suggestion: was** **193. A capillary tube with two open ends may be used to make two TLC spotters.** **Category: Readability > Rephrase** **Error type: Rephrase** **Rephrase this portion for readability.** **Replacement suggestion: fabricate the** **194. Capillary melting point tubes with one sealed end may be used to create one TLC spotter.** **Category: Grammar > Verb Form** **Error type: Tense Usage**	

	The verb “may” appears to be in the incorrect tense; revise it to “can.” **Replacement suggestion: can** **195. Capillary melting point tubes with one sealed end may be used to create one TLC spotter.** **Category: Vocabulary > Vocabulary** **Error type: Word Choice** **Use “a” instead of “one” in this context.** **Replacement suggestion: a** **196. A new capillary must be used for each sample.** **Category: Grammar > Verb Form** **Error type: Verb Form** **Use “is” instead of “must be.”** **Replacement suggestion: is** **197. The capillary may also be cleaned by repeatedly drawing solvent into it and wiping it out with a napkin.** **Category: Grammar > Verb Form** **Error type: Tense Usage** **The verb “may” appears to be in the incorrect tense; revise it to “can.”** **Replacement suggestion: can** **198. The capillary may also be cleaned by repeatedly drawing _solvent into it and wiping it out with a napkin.** **Category: Grammar > Article Usage** **Error type: Article Usage** **The definite article seems necessary before “solvent.”** **Replacement suggestion: the** **199. The tiny diameter of _microcapillary tubes makes them ideal for marking TLC plates or chromatography sheets since they contain relatively small amounts of liquid within each one.** **Category: Grammar > Article Usage** **Error type: Article Usage** **The definite article seems necessary before “microcapillary.”** **Replacement suggestion: the** **200. The tiny diameter of microcapillary tubes makes them ideal for marking TLC plates or chromatography sheets since**	

	they contain relatively small amounts of liquid within each one. **Category: Grammar > Prepositions** **Error type: Preposition Usage** **Use “because” instead of “since” in this context.** **Replacement suggestion: because** **201. The tiny diameter of microcapillary tubes makes them ideal for marking TLC plates or chromatography sheets since they contain relatively small amounts of liquid within each one.** **Category: Vocabulary > Noun/pronoun error** **Error type: Word Choice** **Replace “one” with “tube” if appropriate in this context.** **Replacement suggestion: tube** **202. When a TLC plate or piece of chromatography paper is in contact with the glass tube's end, capillary action causes the liquid to be drawn into the tube and forced out.** **Category: Readability > Rephrase** **Error type: Rephrase** **Rephrase this portion for readability.** **Replacement suggestion: end of a glass tube** **203. Capillary melting point tubes with one sealed end may be used to create one TLC spotter.** **Category: Grammar > Verb Form** **Error type: Tense Usage** **The verb “may” appears to be in the incorrect tense; revise it to “can.”** **Replacement suggestion: can** **204. Capillary melting point tubes with one sealed end may be used to create one TLC spotter.** **Category: Vocabulary > Vocabulary** **Error type: Word Choice** **Use “a” instead of “one” in this context.** **Replacement suggestion: a** **205. A new capillary must be used for each sample.** **Category: Grammar > Verb Form** **Error type: Verb Form** **Use “is” instead of “must be.”**	

	Replacement suggestion: is **206. The capillary may also be cleaned by repeatedly drawing solvent into it and wiping it out with a napkin.** **Category: Grammar > Verb Form** **Error type: Tense Usage** **The verb “may” appears to be in the incorrect tense; revise it to “can.”** **Replacement suggestion: can** **207. The capillary may also be cleaned by repeatedly drawing _solvent into it and wiping it out with a napkin.** **Category: Grammar > Article Usage** **Error type: Article Usage** **The definite article seems necessary before “solvent.”** **Replacement suggestion: the** **208. The tiny diameter of _microcapillary tubes makes them ideal for marking TLC plates or chromatography sheets since they contain relatively small amounts of liquid within each one.** **Category: Grammar > Article Usage** **Error type: Article Usage** **The definite article seems necessary before “microcapillary.”** **Replacement suggestion: the** **209. The tiny diameter of microcapillary tubes makes them ideal for marking TLC plates or chromatography sheets since they contain relatively small amounts of liquid within each one.** **Category: Grammar > Prepositions** **Error type: Preposition Usage** **Use “because” instead of “since” in this context.** **Replacement suggestion: because** **210. The tiny diameter of microcapillary tubes makes them ideal for marking TLC plates or chromatography sheets since they contain relatively small amounts of liquid within each one.** **Category: Vocabulary > Noun/pronoun error** **Error type: Word Choice** **Replace “one” with “tube” if appropriate in this context.** **Replacement suggestion: tube** **211. Capillary motion draws liquid into the tube and forces it out when a TLC plate or sheet of chromatography paper comes**	

	in contact with the glass tube's end. **Category: Readability > Rephrase** **Error type: Rephrase** **Rephrase this portion for readability.** **Replacement suggestion: the end of the glass tube** **212. Glass capillary tubes, which can be acquired from most chemical or glassware suppliers, are used to make TLC spotters.** **Category: Grammar > Verb Form** **Error type: Tense Usage** **The verb "are" appears to be in the incorrect tense; revise it to "were."** **Replacement suggestion: were** **213. Glass capillary tubes, which can be acquired from most chemical or glassware suppliers, are used to make TLC spotters.** **Category: Grammar > Verb Form** **Error type: Verb Form** **Use "prepare" instead of "make."** **Replacement suggestion: prepare** **214. Two TLC spotters may be created using a capillary tube that has two open ends.** **Category: Grammar > Verb Form** **Error type: Verb Form** **Use "were" instead of "may be."** **Replacement suggestion: were** **215. Two TLC spotters may be created _using a capillary tube that has two open ends.** **Category: Grammar > Prepositions** **Error type: Preposition Usage** **A preposition may be needed after "created."** **Replacement suggestion: by** **216. Two TLC spotters may be created using a capillary tube that has two open ends.** **Category: Readability > Rephrase** **Error type: Rephrase** **Rephrase this portion for improved readability.**	

	Replacement suggestion: with **217. One TLC spotter may be made using capillary tubes with a sealed end and a high melting point.** **Category: Grammar > Article Usage** **Error type: Article Usage** **Delete the indefinite article before “high.”** **218. A new capillary must be used for each sample.** **Category: Grammar > Verb Form** **Error type: Verb Form** **Use “is” instead of “must be.”** **Replacement suggestion: is** **219. The capillary may also be cleaned by repeatedly drawing solvent into it and wiping it out with a napkin.** **Category: Grammar > Verb Form** **Error type: Tense Usage** **The verb “may” appears to be in the incorrect tense; revise it to “can.”** **Replacement suggestion: can** **220. The capillary may also be cleaned by repeatedly drawing _solvent into it and wiping it out with a napkin.** **Category: Grammar > Article Usage** **Error type: Article Usage** **The definite article seems necessary before “solvent.”** **Replacement suggestion: the** **221. The tiny diameter of _microcapillary tubes makes them ideal for marking TLC plates or chromatography sheets since they contain relatively small amounts of liquid within each one.** **Category: Grammar > Article Usage** **Error type: Article Usage** **The definite article seems necessary before “microcapillary.”** **Replacement suggestion: the** **222. The tiny diameter of microcapillary tubes makes them ideal for marking TLC plates or chromatography sheets since they contain relatively small amounts of liquid within each one.** **Category: Grammar > Prepositions** **Error type: Preposition Usage**	

	Use “because” instead of “since” in this context. **Replacement suggestion: because** **223. The tiny diameter of microcapillary tubes makes them ideal for marking TLC plates or chromatography sheets since they contain relatively small amounts of liquid within each one.** **Category: Vocabulary > Noun/pronoun error** **Error type: Word Choice** **Replace “one” with “tube” if appropriate in this context.** **Replacement suggestion: tube**	
Optional/General comments	**The article repeats information several times, making it unnecessarily lengthy and confusing. It mentions the same concepts and details multiple times.**	

PART 2:

	Reviewer’s comment	**Author’s comment** *(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)*
Are there ethical issues in this manuscript?	*(If yes, Kindly please write down the ethical issues here in details)*	

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